

Chemical Marketing Reporter

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REPORTER's market index of chemicals and related materials May 30, 1986 152.29

(100=1974 average), based on May 9, 1986 152.63

87 key commercial chemicals, June 7, 1985 156.55

appears alongside with data for two weeks ago, last month and last year.

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CHEMICAL MARKETING

PVC Producers are currently seeking higher prices for this resin.

ETHYLENE: Will five-month price erosion end?

CHROME CHEMICALS: Two major producers in the U.S.

PERFUME: Chemical companies are reporting...

Chemical Marketing Reporter

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NEWSPAPER SECOND CLASS P.O. ENTRY AUGUST 1, 1985 12/25th issue 1985 year

INSIDE CMR

H₂O₂: Bioregulation is budding new market for hydrogen peroxide. The application could account for several million pounds a year of the chemical in two years. Page 3

CYANAMID SELLS: Program to sell off commodity chemicals continues with sale of dicalcium phosphate business and agreement to sell calcium carbonates. Page 3

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POLYMER ALLOYS: Monsanto has a new entry aimed at the auto business and such non-auto applications as lawnmower decks. Nylon-ABS combination described. Page 7

BUTADIENE: Values are half what they were at the start of the year, and they could go lower. Shift to heavier stocks is the primary reason for the drop in prices. Page 7

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VACCINE RECOVERY: Bill to avert a crisis in the nation's immunization program is urged by the medical community. Officials in the drug industry will back it. Page 9

FORMALDEHYDE: Study that found little evidence of connection to cancer is roundly condemned by critics on Capitol Hill. Producers have cited the disputed study. Page 5

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Bioreclamation Budding H₂O₂ Market

Hydrogen peroxide producers, anxious to create new demand to meet the 200-million pounds of annual capacity due on stream in the next two years, are helping to develop and promote peroxide's use in cleaning up underground contaminants, a market which one producer says could see "tens of millions of pounds" of H₂O₂ annually within the next few years.

Called in-situ bioreclamation, the technology is a process in which nutrients, such as nitrogen and phosphorus, are injected into the ground, along with hydrogen peroxide, at the site of an underground leak of gasoline or other hydrocarbons.

The nutrients in conjunction with oxygen freed from peroxide stimulate the reproductive growth of naturally occurring micro-organisms in the soil which feed on the hydrocarbon source, eventually degrading it to simple carbon dioxide and water.

The process of stimulating the micro-organisms to

feed on the contaminants is currently being used by FMC Corporation, Biosystems, Inc., Chester, Pa., and Groundwater Technologies, Inc., Norwood, Mass. Sources say that stimulating the microorganisms' growth by injecting nutrients and oxygen greatly speeds the natural process by which the microbes degrade the hydrocarbon source.

Cliff Harper, managing hydrogeologist at Groundwater Technology, says that, while it might take nature 100 years to biodegrade an underground gasoline leak, bioreclamation can achieve the same results in under five years.

The technique was first used to cleanup a leaking

Continued on Page 20

H₂O₂ cleans up. An Interox technician employs a portable gas chromatography unit to document the effectiveness of hydrogen peroxide in cleaning up industrial spills in a customer's plant. In new application of the versatile chemical it will be used to aid the clean-up of underground spills.



American Cyanamid Sells More Commodity Lines

American Cyanamid Company continues to sell off its commodity chemicals business. Last week, the company completed the sale of its North American dicalcium phosphate business, to Occidental Chemical Corporation.

Cyanamid also reached an agreement in principle to sell its calcium carbonate deposits, and mining and ore processing equipment to Iowa Limestone of Des Moines. Calcium carbonate is a raw material used in making dical phosphate.

A Cyanamid spokesman says the sale of its calcium carbonate business takes the company out of the mining business. Late last year, the company sold its stake in the phosphate rock reserves owned by Brewster Phosphates (a partnership 75 percent owned by AmCy and 25 percent owned by Kerr-McGee Corporation) to International Minerals & Chemical Corporation. Cyanamid also sold its position in Brewster's Lolling, La. phosphate fertilizer plant to Freeport Chemicals earlier this year.

The decision to sell the dicalcium phosphate business was made after Cyanamid agreed to dispose of its remaining mining assets, a company spokesman says. AmCy would be left without a raw material position in the dical business after selling its calcium carbonate assets, he says. Dical is produced by reacting calcium carbonate with phosphoric acid.

Cyanamid's dicalcium phosphate assets included production plants at Alden, Iowa; Weeping Water, Neb.; Haonls, Mo.; and Welland, Ontario. Iowa Limestone is acquiring calcium carbonate deposits and mining and processing equipment at Alden and Weeping Water. Terms were not disclosed in

either deal.

Cyanamid's thrust in the agriculture market will now be concentrated on its sizeable pesticide business and its growing line of high-nutrient animal nutrition products. At the head of this list are the feed additives, aureomycin, used for disease prevention and "Tremasol" de-worming products.

For its part, Occidental leaps ahead of IMC to become the largest producer of dicalcium phosphate in the U.S. AmCy's three US plants have a total capacity of about 160,000 tons of dicalcium phosphate which when added to Oxy's current 430,000 ton nameplate, puts Oxy ahead of IMC's 500,000 ton per year plant in New Wales, Fla.

However, dicalcium phosphate, which is primarily used in animal feed, has fallen on hard times in recent years. Declining cattle and swine herds have cut into its demand base. So has the encroachment of defluorinated phosphate rock into the poultry market. These factors have led to a drop in dical production.

Through May, Fertilizer Institutes reports that dical output was trailing 1985's 500,000-ton production total by 7 percent. Looking ahead, analysts predict only a modest 1 percent growth rate for the animal feed through the decade.

As a result, the industry has entered a period of consolidation. First, Beker Industries Corporation, the financially troubled fertilizer company currently in Chapter 11, shut its 175,000-ton-per-year plant in Marselle, Ill. at the beginning of the year.

Even with the Beker shutdown, sources say industry capacity is grossly underutilized. One producer says the market is in a difficult position, and "there is apparently no room for all the existing plants."

Grace Loses First Round In Boston Contamination Trial

W.R. Grace & Co. has lost the first round in what is seen as a precedent-setting case involving industrial pollution of public drinking water supplies.

In a Federal court in Boston last week, a six-member jury found that Grace "substantially contributed" to the contamination of two wells in Woburn, Mass., a Boston suburb found to have a higher-than-normal incidence of leukemia.

Plaintiffs in the case allege that the contamination of Woburn drinking water supplies was responsible for six leukemia-related deaths and other illnesses since 1978, and are seeking unspecified damages from the company.

Beatrice Companies Inc., which was also named to the suit, was not found responsible for contamination of the wells.

Grace admits that small amounts of trichloroethylene and tetrachloroethylene were occasionally disposed of by workers at the Woburn site of its Cryovac Division, but the company contends that the chemicals

could not have migrated to the wells before May 1979, when they were closed.

The solvents were used to clean equipment at the Cryovac Division, which makes food-packaging machines. Grace stopped using TCE at the site in 1974.

Both solvents are classified by Environmental Protection Agency as probable human carcinogens.

The jury will reconvene in September for the second phase of the case, when it will hear testimony on whether the chemicals were actually the cause of the leukemia and other illnesses, including heart and nervous disorders. In the first phase of the trial, the jury heard five months of testimony and deliberated for nine days.

If the jury finds in favor of the plaintiffs, a third stage in the case would involve determination of damages. Grace could be liable for compensatory and punitive damages to the families of the five children and one adult who died of leukemia, as well as for compensatory damages to plaintiffs alleging other illnesses.

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Superfund Pleases Critics Of The Chemical Industry

Despite some reservations, national environmental groups and their allies in Congress say they are generally pleased with the outcome of lengthy superfund negotiations and they plan to support the five-year, \$8.5 billion compromise bill.

"It's not as good as we hoped but it's not as bad as we feared," says Leslie Dach, associate director of the National Audubon Society. "There's no question this is a far better bill than current law."

"We got nearly all of what we wanted in superfund," adds Rep. James J. Florio (D-N.J.), the author of the original \$1.6 billion toxic waste cleanup program which lost its taxing authority last Sept. 30 when the law expired.

"We've gone a long way toward putting some teeth into the law," says Rep. Florio. "It's a good bill that provides most of the tools we need to finally start cleaning up the toxic waste sites threatening our health and environment."

INDUSTRY VIEWS

Industry has offered qualified support to the House-Senate compromise agreement, but the predominant initial reaction from chemical spokesmen was "we're glad it's over." A spokesman for E. I. du Pont de Nemours & Co. called the agreement a "mixed bag." He called some provisions of the bill "constructive" but labeled parts of the community right-to-know provisions "onerous."

In his view, the right-to-know proposals would require the company to generate a "tremendous volume of information without accomplishing much to protect the community." The most important issue facing Du Pont, he added, was the bill's funding requirements, which have yet to be settled.

A Dow spokesman also expressed concerns about the right-to-know reporting requirements, but added that the compromise list of reportable chemicals, patterned along OSHA's hazardous chemical communication list, is "workable."

A Monsanto official, also had reservations about certain provisions of the bill, but summed up the company's reaction by saying "there is enough good (in the bill) to outweigh

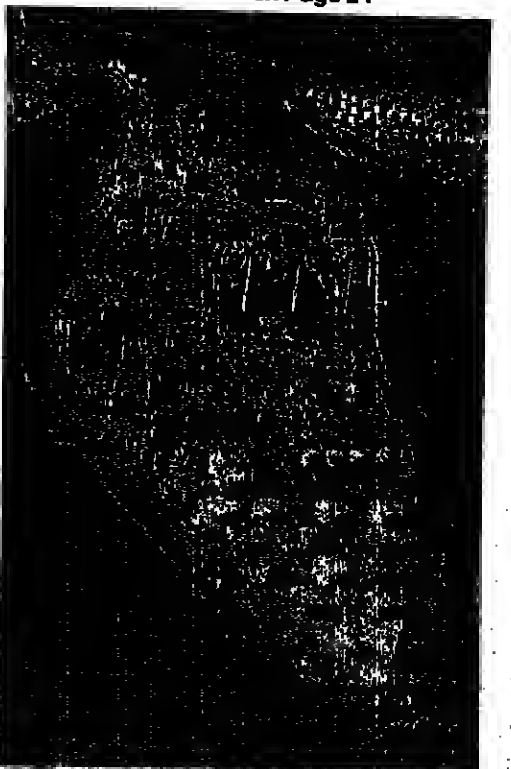
things we don't find appealing." He, like the Du Pont and Dow officials, expressed concern about being "overwhelmed by paper" in the right-to-know provisions of the bill.

A House-Senate conference committee is nearly finished writing a final superfund reauthorization bill to present to both houses for approval. Major differences between the legislation passed by each chamber last year have been resolved. However, the conference panel must still decide how to pay for the greatly expanded clean up program.

After six months of discussion, Rep. Florio predicts that both houses will approve the bill, along with a financing mechanism, before Congress begins its Summer recess August 15.

Environmentalists say a highlight of the

Continued on Page 24



CHEMICAL COMPLEX: New superfund law requires companies to report to state and local officials the amount and location of hazardous substances.

Ethylene Oxide Exposure Would be Reduced by Court

A Federal court of appeals has ordered the government to issue a rule limiting short-term workplace exposure to ethylene oxide, a sterilizing chemical believed to cause cancer and genetic damage, or to justify its refusal to do so. The US Court of Appeals for the District of Columbia affirmed the eight-hour exposure limit Occupational Safety and Health Administration set for ethylene oxide in 1984, but said the agency's failure to limit short-term exposures to high concentrations of the chemical "is not supported by the record."

The court ordered OSHA to "either adopt" a short-term exposure limit (STEL) or explain why such a measure is not necessary. As many as 100,000 health care technicians may be exposed to the gas, which is used to sterilize medical supplies and equipment, according to estimates by the National Institute for Occupational Safety and Health (NIOSH).

The workers are typically exposed to quick, concentrated bursts of the gas when the door of a sterilizing machine is opened and when gas is released from the protective wrappings of freshly sterilized material.

When OSHA proposed the current exposure limit of 1 part-per-million (PPM) over an eight-hour period, it also proposed a STEL of 10 ppm over a 15 minute period. But the agency withdrew the plan a day after the White House budget office charged that OSHA's analysis was flawed.

Public Citizen Health Research Group and several labor unions appealed OSHA's decision by filing a lawsuit against the Federal government charging that current regulations on the chemical are too lenient.

The groups argued that OSHA's refusal to issue a STEL was not supported by the evidence and that OMB's participation in the rulemaking process was illegal.

OSHA said last year that before it could issue a STEL on ethylene oxide, it would need evidence that the same total dose of the chemical causes more harm when delivered in a quick spurt than over a longer period.

Morton Thiokol Buys Powder Coatings Unit

Morton Thiokol, Inc. last week said it acquired the powder coatings business of the Polymer Corporation, Reading, Pa. The Polymer Corporation is a wholly owned subsidiary of Chesebrough-Pond's Inc. The new acquisition is to be merged with Morton Chemical Division's existing powder coatings business (Armstrong Products, Warsaw, Ind.) and will be headquartered in Reading, Pa.

Under the direction of Thomas J. Scatoloni, vice-president for powder coatings, the new organization will operate as the Powder Coatings Group with the Morton Chemical Division.



Daniel D. Witkov, who has been elected senior vice-president for the worldwide human health business of Upjohn Company. He was previously vice-president for those businesses.

Reilly Tar and EPA Agree on Groundwater

Environmental Protection Agency and the state of Minnesota have reached a \$14 million agreement with the Reilly Tar & Chemical Corp. to clean up groundwater pollution at a company waste dump in St. Louis Park, Minn.

The Reilly Tar site is a priority toxic waste dump under the agency's superfund program.

The company has also agreed to restore full capacity to the city's water system, which was contaminated by waste from the site, and to reimburse EPA \$1.72 million and the state \$1 million for past and future investigative and legal costs.

In addition, Reilly Tar has agreed to monitor the groundwater for at least 30 years and to implement any additional remedial measures necessary.

Soil and groundwater at the dump were contaminated with coal-tar and creosote from the company's coal-tar distilling and wood-treating operation.

Dow, Italian Firm In Chloralkali Pact

Dow Chemical Company and Oronzio De Nora S.p.A., Lugano, Italy, formed a new joint venture devoted to developing and commercializing chlor-alkali membrane cell technology. The 50-50 joint venture will operate globally, selling and licensing plant technology and equipment to third parties. Initially, operating subsidiaries will be established in the US and Italy and later in other countries.

The new company, to be known as Oronzio De Nora Technologies, will commercialize monopolar and bipolar membrane cell technology, primarily developed through joint research agreement, as well as certain other related chlor-alkali technologies contributed to the joint venture by Dow and De Nora. It will also continue the joint research program previously started by the two parent companies.

Oronzio De Nora Technologies is expected to be operational before the end of 1988. Dow and De Nora have an existing joint venture in Lugano, Switzerland, which commercializes the cathodic protection technologies of the two companies.

Eastman Kodak In Biotech Venture

Eastman Kodak Company, Rochester, N.Y., and Engenica, Inc., Menlo Park, Calif., have entered a joint development program to develop biotechnicals that serve markets related to nutrition.

Under the terms of this agreement, Engenica will conduct work in microbial strain development, using the tools of molecular biology, and will also carry out projects in process development. Kodak's Bio-Products Division will be responsible for manufacturing scale-up and commercialization of the product.

"This agreement expands our ability to participate in markets related to nutrition, an area of growing opportunity for the Bio-Products Division," says Dr. Kenneth C. Kennard, general manager and vice-president of the division. "Engenica's expertise in biochemical process development will complement our skills in fermentation, separation and purification."

John L. Richardson, Engenica president and chief executive officer, adds, "Our team of engineers and scientists, who have expertise in all phases of bioprocess development, will help shape promising new areas of opportunity for both companies."



John Giordani, who has been appointed vice-president and chief financial officer of ICN Pharmaceuticals, Inc. He was previously vice-president and corporate controller of Ration, Inc.

Asarco Plans to Sell Mine to Brunswick

Brunswick Mining and Smelting Corporation announced last week that it has reached an agreement in principle to acquire Asarco's 25 percent interest in the Little Silver Joint Venture which owns the Heath Steel Mine in Northern New Brunswick. The other 75 percent is held by Noranda.

Brunswick will finance a \$5 million exploration program to be carried out by Noranda Exploration over the next five years on the property outside the existing reserves and infrastructure.

This expenditure will earn Brunswick an additional 25 percent interest in this area from Noranda with ownership and development of any finds on fifty-fifty basis with Noranda.

The Heath Steel Mine ceased production in April, 1983, and is currently in a care and maintenance status with the underground workings being pumped out, which will continue for the immediate future.

Some surplus assets will continue to be sold in order to offset the costs of this program. When operating, the mine produced primarily lead, zinc, copper and silver.

At current and forecast metal prices, the current reserves are not economic, so any future reopening will depend upon the success of the exploration program in finding economic mineralization, the company says.

Air Products Licenses Technology

Air Products & Chemicals, Inc., has licensed a proprietary titanium carbide (TiC) chemical vapor deposition (CVD) technology from the Centre Suisse d'Electronique et de Microtechnique S.A. (CSEM).

The agreement provides Air Products with an exclusive U.S. license for manufacturing, selling and using TiC products produced by the CSEM process. Other recent Air Products initiatives in advanced ceramics include its acquisition of San Fernando Labs and Materials Technology Corporation in 1984 and 1985, respectively.

The CSEM technology can be used to coat steel substrates without diminishing key metallurgical properties such as yield strength and fatigue resistance.

Its ability to deposit a uniform, coating on spherical substrates is said to make the technology particularly amenable for precision balls used in miniature bearings for gyroscopes, satellite components, and electronic systems.

Air Products' initial plans for commercializing the technology will focus on miniature bearing applications and will include collaborative efforts within the industry and ongoing commercial and technical programs with CSEM.

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Upjohn Tests Herbal Compounds

Upjohn Company says it has entered into a research agreement to screen and develop compounds derived from Chinese herbal medicines that have never before been studied in the West.

Under the agreement, Shanghai Institute of Materia Medica has provided Upjohn with research quantities of compounds isolated from 10 Chinese herbal medicines used for centuries in China for treatment of a wide range of human disorders, including cancer, cardiovascular disease and central nervous system malfunctions.

Upjohn has agreed to pay Shanghai Institute an undisclosed sum for access to the most promising of the compounds as well as royalties should any of the compounds be developed into commercial products by Upjohn.

"This agreement is a significant step in our worldwide research endeavor and provides an interesting complement to our expanding use of rational, targeted drug discovery and development techniques," says Jacob C. Stuckl, Upjohn's

corporate vice-president for pharmaceutical research.

Shanghai Institute says the agreement with Upjohn is the first such accord it has entered into with a Western pharmaceutical firm. The institute expects the collaboration to lead to "future cooperative efforts that also benefit both Upjohn and the institute and lead to the development of new drugs."

Upjohn says it intends to apply advanced techniques to test the compounds for their maximum biological activity. "We can't be sure that any of them will offer more therapeutic benefit than what might already exist in the pharmaceutical marketplace," Upjohn concedes. "However, they have not appeared in the scientific literature before, and we're excited to have this unique opportunity to test these compounds and enhance our discovery efforts."

Disclosure of the compounds will occur in the scientific literature after patents are secured and other preliminary work is completed, Upjohn says.

Methylene Chloride Faces Possible Future Restrictions

Consumer Product Safety Commission began a rulemaking proceeding last week that could result in a declaration that products containing methylene chloride are "hazardous substances" due to a carcinogenic risk from inhaling the vapors of the chemical.

If the commission eventually rules that methylene chloride-containing products are hazardous, the chemicals could be banned or its use strictly regulated.

Sources say the commission is currently leaning toward requiring specific warning labels on products containing methylene chloride. First, however, the law requires a detailed and often lengthy process of collecting data and holding hearings before a formal rule can be issued. It was this process that was initiated by the commission.

Substantial quantities of the chlorinated solvent are found in aerosol spray paints and chemical paint strippers. The National Toxicology Program has found methylene chloride causes cancer in laboratory animals at levels in air similar to those humans might encounter in the occasional use of those products without adequate ventilation.

The commission has been considering in-

formation on the toxicity of methylene chloride for several years and in August 1985 was petitioned by the Consumer Federation of America to begin rulemaking to find if the chemical is a hazardous substance and to subsequently ban its use.

In addition to the safety commission, several other government agencies are also examining methylene chloride.

Food & Drug Administration has moved to ban it from hair sprays, Environmental Protection Agency is studying its dangers and Occupational Safety & Health Administration has developed a series of chronic warning labels for industrial products containing the chemical.

However, FDA has declined to prohibit use of methylene chloride in the process of decaffeinating coffee, concluding that only minimal consumer exposure occurs in that use.

The commission has been working with the consumer federation and the nation's paint manufacturers on ways to reduce its use or provide consumer warnings.

The Halogenated Solvents Industry Association, which represents methylene chloride manufacturers, has also been active in working with regulators on ways to reduce exposure.

Monsanto Sheds Chemicals For Biotech, Specialties

Monsanto Company is winding up a five-year period in which the company has shed some \$2 billion to \$2.5 billion in unwanted commodity chemical assets and positioned itself to move ahead in chosen fields of biotechnology, pharmaceuticals and specialty engineering plastics.

Earle H. Harbison, president and chief operating officer of Monsanto, told trade press editors at a briefing in New York last week that "the biotechnology push is probably the centerpiece of what we are doing now."

Monsanto is selling its Texas City, Tex. petrochemical complex for \$180 million to Sterling Chemicals, Inc. this month, sale of the company's US polystyrene assets to Polysar, Ltd. will follow this quarter and Monsanto's plastic bottle and container business has just been put on the block.

Mr. Harbison hastens to add that chemicals are still a big part of the company's business, however, and will remain so. The current \$3.2 billion chemical mix is "solid, with good return, good margins and good product differentiation," he says, adding that fully half Monsanto's budget is devoted to chemicals.

The company's six chemical divisions,

which have aggregate sales of more than \$3 billion, roughly half the company's total, are "returning 15 percent or so and should continue to do that," Mr. Harbison says.

At the same time, he describes Monsanto in 1988 as "a chemical, biotechnology-driven company" and admits that since other segments of the company are growing at a much faster rate, chemicals will, of necessity, account for a lesser proportion of total revenues in the future.

Monsanto expects to be on the market with its bovine growth hormone product in the late 1980's, Mr. Harbison says. An improvement of 15 percent in the feed-to-milk ratio has been demonstrated using the product and 20 to 40 percent increase in milk production. An issue, he says, is the massive amount of material that has to be fermented to obtain the product.

In human pharmaceuticals, Mr. Harbison says an atrial peptide product (antihypertensive) which grew out of work with Washington University has promise, "but it's too soon to say if it is real." A \$25 million five-year research agreement with the university was extended this year and funding more than doubled.

Mr. Harbison says the tissue plasminogen

Continued on Page 28

Formaldehyde Study Condemned on the Hill

A recent National Cancer Institute study that found "little evidence" that formaldehyde causes cancer among the 1.4 million workers exposed to the chemical ran into a storm of criticism on Capitol Hill last week.

At a House Energy and Commerce oversight subcommittee hearing, labor union safety directors and several congressmen challenged both the conclusions and NCI's propriety in cosponsoring the study with the Formaldehyde Institute, a trade group representing formaldehyde manufacturers.

The four-year, \$1 million study, released in March, found that deaths from lung cancer were 32 percent higher than normal among the 25,000 workers studied, and found higher than average rates of upper-respiratory cancer.

But NCI concluded there was no link between formaldehyde and these cancer increases, because workers with longer, heavier exposure to the substance did not show higher cancer rates than workers with fewer years of exposure.

As many as 1.4 million workers in 50,000 factories are exposed to formaldehyde. Nine billion pounds of the chemical are produced annually in the US for use in producing plastics, textiles, plywood and other products.

Tests have shown formaldehyde has caused cancer in laboratory animals. It has

been termed an irritant to humans, but not a cause of cancer.

Occupational Safety & Health Administration is currently considering proposals to lower the standards for workplace exposure. At hearings in May, manufacturers pointed to the NCI study as evidence that formaldehyde is not a carcinogen.



Rep. John Dingell disagrees with study conclusions.

Ground Water Action Needed at State Level?

State agencies must develop protection programs for the nation's threatened ground water supplies in addition to concentrating on cleaning up already-contaminated water, says a report by the National Research Council in Washington, D.C.

It is also imperative for states to use their regulatory powers to control contamination from waste-producing industries, pesticides, underground storage of toxic substances and road salt runoff, said Anthony D. Cortese, director of Tufts University's Center for Environmental Management and one of the report's contributors.

"Today, much of the nation's attention is concerned with correcting ground water degradation resulting from historic practices."

"However, the nation is facing continued economic development, population growth and acceleration in the development of new products and technology that make it imperative that governmental programs focus on

prevention," says the report. "Ground Water Quality Protection: State and Local Strategies."

The review of 10 state and three local ground water protection programs was undertaken in January 1985 by the council's Water Science & Technology Board at the request of Environmental Protection Agency. Programs were reviewed in Massachusetts, New York, New Jersey, Connecticut, Florida, Kansas, California, Arizona, Colorado and Wisconsin.

The report looked for "features that show progress and promise in providing protection of ground water quality. It is hoped that these features can be used as practical models for others who are attempting to develop and enhance state and local ground water protection programs," it says.

The committee found no single ground water protection program that addressed all the issues. But the programs provide useful models for the development or improvement of

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Chemical Companies Pitch In To Aid Drought-Stricken Farmers

Aiding drought-stricken farmers in the Southeast has become a national endeavor, with even a few chemical companies donating resources for the cause.

Last week, a convoy of Monsanto Company trucks arrived in Greenville, S.C., carrying 350 tons of hay donated by Michigan farmers to feed the state's starving livestock.

Eastman Kodak Company, a wholly-owned subsidiary of Eastman Kodak Company, photoed state agricultural officials last week with an offer to send a railcar of dicalcium phosphate, an animal food supplement.

"We were aware of the plight of the Southern farmers," Eastman says. "Animal food supplements seemed to be something they could use."

Dicalcium phosphate is a by-product of Eastman's photoemulsion gelatin operations in Peabody.

Indiana farmers sent 77 boxcars of hay on a railcar donated for the purpose by CSX Cor-

poration last week, while Air Force cargo planes earlier delivered hay from Illinois.

Predictably, politics has entered the hay relief efforts in South Carolina, where the governorship is up for grabs to the Fall, and the state's junior US Senator is running for reelection.

Sen. Ernest F. Hollings (D-S.C.) complained that the Reagan Administration ignored his request for Air Force cargo planes to transport 30 tons of hay from Massachusetts, while the White House accommodated a similar request to transport Illinois hay from Rep. Carroll A. Campbell Jr. (R-S.C.), who is running for the statehouse.

There's a "political tap dance going on," with different politicians claiming credit for the hay coming in, observes Jerry Dyer, spokesman for South Carolina Department of Agriculture. "We just continue to march."

He says the state's farmers need 270,000 tons of hay between now and Spring, and even with the donations, there probably won't be enough. "It's bad. Very bad," he says.

Resourceful

"One of our customers told me he needed a special rail car for soda ash because he had to cut down his unloading time. My reaction was, 'We can do it!' So a lot of us pulled together and came up with a special hopper car... one that our customer could unload in one day, not three!" Mike Freed, FMC Sales Representative, Downers Grove, Illinois.

To FMC, every customer is special. Our commitment to "BEING OUR CUSTOMERS MOST VALUED SUPPLIER" means having the resourcefulness to respond to what the customer needs. That commitment doesn't stop with a sales call. It starts with one.

Responding to his customer, Mike Freed went into action and tapped FMC's resources... Lori Jeffrey in customer service, Marty Wright in marketing, Larry Mungiole in transportation, Don Warren at the Green River plant. Working as a team, they got the job done.

A leader in exploration, mining and processing of natural resources into chemicals, FMC's Industrial Chemical Group produces alkali, phosphorus, and specialty chemicals, and minerals.

We Want Our Customers To Value Us
As Much As We Value Them.

FMC Industrial
Chemicals



CHEMICALS IN WRECK: Presence of FMC "Thiodan" among other chemicals in railroad blown off bridge in Boone County, Iowa, prompted concern for Des Moines River. A check of the water found no contamination, however.

Polymer Alloys: Monsanto Adds New Wrinkles

Monsanto Company, an old hand in polymer alloy technology, has added some new wrinkles to its latest product, a nylon-ABS series of high-impact engineering thermoplastics which the company is calling "Triax" 1000.

Key to the series, according to Monsanto, is proprietary alloying technology which makes possible true alloying of highly dissimilar materials.

Suren D. Khanna, "Triax" program manager, stresses the balance of properties in the product, along with high-impact strength. More cost effective than toughened nylon, he says, the new alloy has significantly reduced moisture sensitivity.

Better chemical resistance and lower specific gravity makes it cost effective versus polycarbonate, and maintenance of high impact strength at room and cold temperatures makes the "Triax" series a prime candidate for injection molded power tools, snow blowers and lawn mower components, he says.

In field testing for a year, the materials

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BASF Slates Specialties Unit At Geismar, La.

BASF Corporation said last Thursday that it will begin construction in September of a \$25 million specialty chemicals plant at its Geismar, La., facility.

The plant will manufacture tetrahydrofuran and polytetrahydrofuran which is used in polyurethane elastomers, thermoplastics, casting resins, textile coatings and fibers. Consumer products using the material include swimsuits, ski suits, ski boots and ultra-suede garments.

The new facility will employ 26 full-time, permanent employees with an annual payroll of more than \$1 million, and 180 workers during peak construction periods. Construction will be performed by a Louisiana firm and is expected to be completed in October 1987.

The fact that we are investing \$25 million in our Geismar facility, at a time when many other chemical companies are reducing operations,

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Butadiene Price Falls In Line With Crude's Swing Capacity Cited

Butadiene prices have dropped sharply since the first of the year, according to producers and market analysts, under the influence of the severely depressed price of crude oil. Butadiene values have halved since January 1, a producer said last week, and an analyst suggests there could be additional price deterioration.

"I think the price can go lower," he says. "I think it would be disastrous if it did, but there is the potential."

Butadiene was quoted last week at 13 1/2 cents per pound by one maker, but actual selling prices may be below 13 cents. The current market price is pegged by an observer at somewhere between 12 and 13 cents per pound.

These prices compare to selling levels in the early first quarter of 27 1/3 to 29 cents per pound.

First among reasons given for the precipitous drop is the shift at domestic basic olefins plants to heavy feedstocks. The consequence of the shift is a significant upsurge in production of coproduct butadiene and oversupply of the material.

"Crude declined so much that it became

very profitable to crack heavy gas oils in the US," explains an analyst, who notes that a switch back to lighter feeds, predicted by some in April and May, never materialized. "Ethane just hasn't become competitive with gas oil and naphtha yet," he says.

It's estimated that 25 to 30 percent of olefins production capacity in the US is highly flexible and can swing widely between heavier and lighter feeds in feedstock slates.

Before the swing to heavier feeds, US crackers were running approximately 22 to 23 percent naphtha/gas oil overall, and that figure has now risen to 35 to 40 percent.

Right now, "The economics are such that heavy feeds are overwhelmingly the way to go," in the words of a butadiene maker, and that means there is far more material on the market than when lighter feeds predominated.

Given the rise in US supply, an analyst says, "we have been slowly turning off the spigot on imports."

He notes that June butadiene imports totaled 30 million pounds, which annualizes to a full year total of 360 million pounds. That compares to 600 million pounds imported in

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Daminozide Shunned

Doubts about the safety of daminozide have led wholesale apple buyers to shun treated crops even though the government has not banned the pesticide, says an apple industry spokesman.

Daminozide is a growth regulator sold under the trade name "Alar" by Uniroyal Chemical Company. Growers say it yields a redder, more easily harvested apple with a longer shelf life that keeps apples in supermarkets the year round.

Environmental Protection Agency attempted to remove "Alar" from the market last year on the grounds that the chemical breaks down to unsymmetrical dimethylhydrazine which has been shown to cause cancer in animals in several laboratory studies.

But the agency's independent scientific advisory panel said a ban was not warranted by the current evidence, so EPA announced in January that "Alar" could

be used while Uniroyal performed additional animal studies.

Part of the agreement with the agency was that the company would issue an "advisory statement" warning against use on apples destined solely for processors who make juice, cider, sauce and other products.

This created a gray area for apples grown for the fresh market but diverted to processors because they were not top grade. The advisory statement led buyers to tell growers they do not want "Alar"-treated fruit.

Buyers "just can't afford it," says Derl Derr, executive director of the International Apple Institute. Some companies, he says, have concluded that use of "Alar"-treated apples originally grown for the fresh market would leave them vulnerable to lawsuits.

Celanese Claims Expansion In Engineering Resins Area

Celanese Engineering Resins Inc. claimed last week that it now offers the widest range of engineering resins of any producer in the US, as a result of recent acquisitions, expansions and other developments. Company spokesmen made these assertions at a press conference in New York last week.

Although it ranks third in the US in terms of sales, behind General Electric and Du Pont, Celanese's high-performance engineering resins now include of ten distinct materials, many developed within the past two years as a result of transfers and technology licensing.

It recently acquired the worldwide rights to GAF's technology and assets in PBT (polybutylene terephthalate)-based products and thermoplastic elastomers.

As of July, 1986, it has also acquired the exclusive North American sales rights, semi-exclusive European sales rights, and non-exclusive South American sales rights to Kureha Chemical Industry Company Ltd. of Japan's PPS (polyphenylene sulfide) resins.

Celanese will now market these heat-resistant resins under the trademark "Fortran." Initially the firm will sell resin produced in Kureha's Japanese plant, but it expects to

build a PPS production plant in the US as soon as sales justify the move.

"Fortran" will give Celanese more of a competitive presence in the electrical/electronics market, which accounts for 34 percent of the total market for PPS. Approximately 10 million pounds of this resin were sold in the US last year, and demand is expected to increase at the rate of 15 percent annually through 1995. PPS will be important in situations where extreme heat is involved, for example, in the production of printed circuit boards. Although it is now primarily an injection molding resin, Celanese is working to develop extrusion grades, and to use PPS in advanced composites.

The firm reports that it has expanded its presence in Europe, with the recent establishment of Celanese GmbH, a new sales, marketing and technical support company for engineering thermoplastics located in Westphalia, West Germany. The firm and will have branch offices in Stuttgart and Munich, and promote market growth through joint development ventures with customers.

Celanese will also be increasing its involvement with the US automobile industry, by far the largest end-user of its thermoplas-

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P-D Smelter Back On Line After Pact

Phelps Dodge Corp. last week resumed operations at its copper smelter at Douglas, Ariz., after negotiating a consent agreement with Environmental Protection Agency and the Arizona Department of Health Services.

The agreement, filed in Federal district court in Tucson Tuesday, requires the company to permanently close the smelter no later than January 15, 1987.

Smelting had been suspended on July 9 to avoid violating a Clean Air Act standard for sulfur dioxide emissions. The approximately 280 workers laid off have returned to their jobs.

According to EPA, Phelps Dodge has agreed to pay a \$400,000 fine for past sulfur dioxide pollution from the smelter and \$100,000 for each future violation of various pollution regulations.

In addition, the company has agreed to sharply reduce short-term sulfur dioxide emissions from the plant. Groundlevel concentrations of the pollutant will be limited to an average of two parts per million over six minutes.

National air quality emission standards prohibiting averages of more than 0.5 ppm over three hours, or 0.14 ppm over 24 hours remain in effect.

If the company violates the special short-term standard five times, EPA and Arizona officials would have the authority to immediately shut down the plant.

Environmental Defense Fund, which has been pressing EPA to close the smelter permanently on the grounds it is a health hazard to asthmatics in the area, criticized the agreement and said it may file a lawsuit.

Monsanto Unit Making 'Saflex' To Rise In Ghent

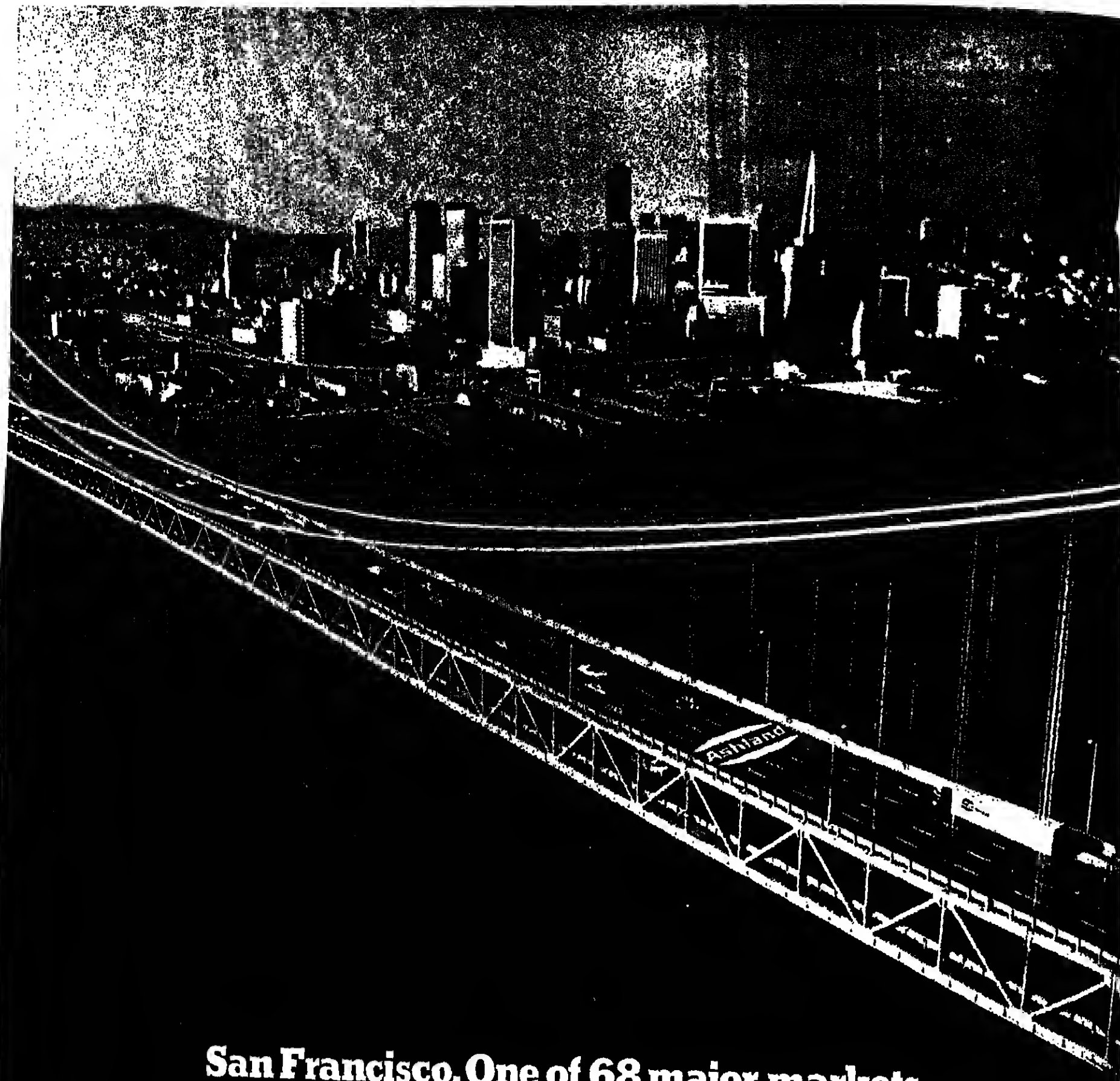
Monsanto Chemical Company's Resins Division last week reported plans to expand by 50 percent its capacity in Europe to produce "Saflex" plastic interlayer. The company also announced that its board of directors at their June meeting approved a major modernization of the company's Trenton, Michigan, polyvinyl butyral resin facility.

The company says these actions, coupled with the recent startup of a new PVB resin facility at its plant in Indian Orchard, Mass., will improve its ability to meet the growing demand in North America and Europe for "Saflex" for use in laminated windshields and architectural glazing and strengthen the company's cost and quality position in polyvinyl butyral, the key raw material for "Saflex."

"The successful startup of our new polyvinyl butyral resin plant at Indian Orchard provides Monsanto not only with a significant increase in our raw material supply for "Saflex," but also the capability to produce "Saflex" with a greater range of performance attributes," W.H. Slowikowski, a Monsanto Chemical Company vice president and general manager of the Resins Divisions, says.

"With an additional capacity of more than 20 million pounds, the new facility at Indian Orchard augments the PVB resin capacity already in place there as well as at Trenton, Mich., and Antwerp, Belgium," he added.

"The planned European expansion will add a second production line for 'Saflex' to the facility at Ghent, Belgium. This is the next phase in an ambitious program the company has implemented to strengthen Monsanto's position as a worldwide leader in this important business," Mr. Slowikowski notes. The planned capacity expansion for the product will employ advanced sheet forming technology, including the company's NCP gradient process.



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News Capsule

Haber Forms Division

Haber Inc., Towaco, N.J. has formed a new EMP electrochemical Division as part of an organizational and management realignment. The new division will direct Haber's activities in developing and transferring instrumentation and separation technology to the pharmaceutical, biomedical, chemical and electronics industries. Robert W. McPherson has been appointed general manager of the new unit.

Chevron, ICI in Accord

Chevron Chemical Company and ICI Americas Inc. have reached a tentative agreement to terminate Chevron's rights to distribute paraquat in the US. Chevron's Ortho Agricultural Chemicals Division has marketed the non-selective herbicide here since 1986 as ICI's licensee. ICI Americas has also sold paraquat in the US for the last two years under the trade name "Gramoxone." ICI discovered the product over 25 years ago.

NL Court Decision

The US District Court for the Southern District of New York has reserved decision on the Simmons Group motion for a preliminary injunction against implementation of NL Industries Inc.'s preferred share purchase rights plan. The court denied NL's motion for a temporary restraining order requiring the Simmons Group to extend the expiration and withdrawal dates of its tender offer.

C&K Treatment System

Crompton & Knowles Corporation has installed a new control system to increase the quality of effluent discharge at its Gibraltar, Pa., dyestuff plant. The "Pact" process, licensed through Zimpro Inc., adds powdered activated carbon to the plant's existing extended aeration biological oxidation lagoon.

Neste Chemicals Acquires

Neste Chemicals of Finland has acquired a majority interest in Busink Plastics BV, the Benelux-based trading house. In addition to the Benelux office, Busink also has marketing companies in Hong Kong and Vancouver.

Mobay Expands Capacity

Mobay Corporation plans a two-stage expansion of a plant in Baytown, Tex., which produces aliphatic polyisocyanates used in high-solids, high-performance coatings. The project will focus on increasing production of hexamethylene diisocyanate and HDI-derived polyisocyanates.

C-E Licenses Software

Combustion Engineering Inc. will develop a computerized plant design system based on software licensed from Imperial Chemical Industries PLC. C-E will jointly develop the new system with Duke Power Company. The license agreement allows C-E to use, develop and market ICI's computer software for industrial plant design.

Alcoa Restarts Units

Alcoa says it will restart primary aluminum capacity at Rockdale, Tex., and Wenatchee, Wash., to balance metal supplies against current demand levels. At Rockdale, one line will be restarted, bringing to five the number of lines operating, out of a total of eight. Wenatchee will return to full five-line production.

Coastal Litigation

Coastal Caribbean Oil & Minerals Ltd. will use proceeds from a stock offering to fund the legal expenses of its Coastal Petroleum company subsidiary, which has damage claims pending against seven phosphate producers in Federal court in Florida.



William B. Hirsch, who has been appointed vice president and general manager of a newly formed polyaster division by Goodyear Tire & Rubber Co.

Agent Orange Vietnam Study Seen In Trouble

A study of the effects of Agent Orange on Vietnam veterans, delayed more than six years, is in jeopardy because of incomplete military records, a top Federal health official told Congress last week.

Dr. James O. Mason, director of the Centers for Disease Control, told a House Veterans Affairs subcommittee that serious questions about the scientific credibility of the study have been raised because of incomplete information about how much exposure servicemen received while in Vietnam.

But he said the project has the "highest priority" at the CDC, despite the delay.

Dr. Mason said records reveal where ground troops were during the spraying of Agent Orange, but do not give a precise location of individual soldiers needed to determine the degree of exposure and make the study scientifically valid.

Electronics Mart Is Hiking Need For Chemicals

US demand for electronic chemicals and materials will reach \$6 billion by 1991, according to a new study. Historically, the electronics industry has experienced tremendous growth in terms of the demand for finished systems, components, and the related chemicals and materials required to make such products.

While 1984 was an exceptional year in the industry, 1985 resulted in a significant downturn in each segment of the business, Charles E. Gilman & Co. of Fairfield, N.J., says. The severity of this downturn was primarily attributed to a buildup in semiconductor inventories by electronic system producers and semiconductor fabricators.

This year began with the hope that this disastrous downturn was over. With half of the year gone, suppliers have begun to see some signs of a recovery with a slight pick-up in chemical orders and a shortening of semiconductor order lead times. However, only a modest increase in demand has resulted in a

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Vaccine Rescue Bill Urged on Congress

Representatives from the medical profession are urging Congress to take immediate action on a proposed vaccine compensation bill designed to avert a crisis in the nation's immunization program.

The drug industry says it, too, will back the legislation if some modifications are made.

Sponsored by Rep. Henry Waxman (D-Calif.), the bill would set up a Federal compensation program to pay children injured by vaccine side-effects. The no-fault system is an attempt to limit the number of lawsuits against vaccine manufacturers.

Drug companies say the threat of liability judgments has been driving up the cost of vaccines and has forced several pharmaceutical companies to drop out of the market, threatening the availability of vaccines that prevent deadly diseases.

Merlin H. Smith, president of the American Academy of Pediatrics, told the House Energy & Commerce subcommittee on health that while three producers of childhood vaccines remain in the market, "the costs of these products have soared. The crisis has shifted from one of supply to one of affordability."

Several months ago, the two manufactur-

ers of the DTP vaccine, Lederle Laboratories and Connaught Laboratories, nearly quadrupled their prices by the addition of an \$8 per dose set-aside to cover potential liability. As a result, Dr. Smith noted, parents are directly subsidizing an \$80 million liability reserve fund, an amount that exceeds what we spend as a nation for the entire childhood immunization program.

"The high costs of vaccines are forcing some families to opt for the 'free' vaccines at public clinics. We anticipate a significant shift of patients from the private to the public sector this year," Dr. Smith said.

He said public health facilities have neither the funding nor the personnel to satisfy the increased demand for immunizations. Further, the government will be forced to pay increased vaccine prices early next year when the contracts under which they currently pay much lower prices expire.

"Necessary immunizations are rarely covered by insurance and are paid as an out-of-pocket expense. The simple truth is that many families who may not be able to afford the escalating costs of vaccines may delay protection against disease," said Dr. Smith.

As a consequence, he said the ongoing cost crisis is tantamount to a crisis of supply with

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Intellectual Property Rights

The Reagan Administration accused some developing nations Thursday of engaging in "intellectual property" theft by failing to protect US patents, trade marks and copyrights on a wide range of products, including chemicals and pharmaceuticals.

Many third world countries follow misguided strategies for development, says Harvey E. Bale, assistant US trade representative. He says these countries can produce goods cheaply because their wages are low and that they try to increase that advantage by making the latest know-how available to their factories at low prices.

"Often this means tolerating the appropriation of foreigners' intellectual property rights, without compensation," he says.

Although the official did not name any

country in written testimony submitted to a House Foreign Affairs subcommittee on economic policy, Mr. Bale subsequently told the panel Singapore is the major problem for US industries that attempt to protect their products with copyright laws.

He added that he expects Singapore to pass a law later this year that would protect US material.

In Taiwan, loopholes in the laws and their enforcement have caused major problems in recent years. He said Taiwanese laws on evidence are insufficient to prosecute violators of patents and copyrights, that only the process of producing chemicals can be patented in Taiwan, and there is no way to get patent protection for a biologist who develops a new micro-organism.

Arco Chemical Plans to Sell Marginal Parts of Its Operation

Arco Chemical Company last week said it will "embark on a more focused strategic direction" by expanding its surethane and polystyrenic businesses and spinning off marginally profitable operations that account for about 20 percent of its \$2 billion annual sales.

On the block are a building products unit, the ChemLink Group (oilfield chemicals and water treatment services) and specialty chemicals and advanced materials. These will be separately organized from Arco's other activities and offered for sale.

Arco will retain its oxygenated products, oxygenated fuels, styrene and industrial chemicals, propylene oxide derivatives, specialty chemicals related to propylene oxide production, polystyrene resins and foams, engineering resins and foams and wallframe building systems.

"This new strategic direction," says Arco Chemical president Harold A. Sorgenti, "will allow us to concentrate our financial and human resources on the parts of our business that have the greatest potential for profitable growth over the next several years. We will be a more streamlined company; better able to pursue the very significant opportunities that exist in oxygenated and polystyrenics and thus will become more profitable."

Arco manufactures propylene oxide at fa-

cilities in the US, Europe and a joint venture in Japan. A \$300 million facility is under construction in Southern France and will be completed in 1988.

Tertiary butyl alcohol, a major coproduct of propylene oxide, is the basis for the company's oxygenated fuels business, notably MTBE and "Oxinol" octane enhancers marketed to gasoline refiners.

Styrene products include polystyrene monomer, "Dylene" and "Dylite" polystyrene resins and foams, as well as "Dylark" styrene copolymer engineering resins and proprietary products.

Monsanto Sale

Monsanto Company completed the sale of its Texas City, Tex. petrochemicals plant to Sterling Chemicals, Inc. for \$160 million. Monsanto group vice-president Earle H. Brasfield said once the value of plant inventories and other related assets is fixed, the cash proceeds from the sale will total about \$200 million. Sterling Chemicals is a newly formed corporation organized by the Sterling Group, Inc., a Houston-based investment firm that specializes in leveraged buyouts.

Who's making news in fatty acids and glycerine?

Why, Procter & Gamble is! Take our new, multimillion-dollar Quincy plant, near Boston. This fractionated fatty-acid facility will begin producing a multiple-product line this year.

We also continue to take a leadership role in supplying high-quality glycerine. Today we have refining facilities at five locations in North America, to meet your needs for a variety of end uses.

But fatty acids and glycerine are only two examples of P&G's heightened fatty-chemicals activity. At our state-of-the-art plant in Sacramento, Calif., alcohol-processing technology has taken a giant step forward, and production capacity has doubled.

As a result, we are able to supply ever-increasing quantities of even higher-quality ethoxylates, methyl esters and straight-chain fatty alcohols.

What's more, Sacramento's advanced technology

has led to the production here of high-purity, heavy-cut alcohols.

In fact—with facilities from Hamilton, Ont. to Dallas, Tex., and from Baltimore, Md. to Long Beach, Calif.—our capacity to produce a full line of naturally derived chemicals may well be North America's largest.

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OILS, FATS & WAXES

Peanut Crop Hurt by Drought; Oil Faces an Uncertain Future

The drought hitting the Southeast could reduce the peanut crop by 15 to 40 percent, according to industry analysts. Most expectations are running closer to 20 to 35 percent. How this will affect the peanut oil market is still unclear, however, because the hot, dry weather could increase the percentage of peanuts for crushing while reducing the edible crop.

The region affected by the drought includes 75 percent of the peanut growing area, with Georgia's crop being especially hard hit. The estimates of crop damage are, at this point, preliminary speculations, source caution. While the drought has killed some crops in the fields, much of the damage is expected to be in the form of underdevelopment of the peanuts, something which cannot be judged until they are pulled out of the ground during the harvest.

Another major concern among people in the peanut industry is quality. Hot dry weather often results in a decrease of edible grade peanuts. Segregation 3 peanuts, referring to the inedible grade, are produced in relative abundance during drought conditions, something which may benefit peanut oil producers.

One major cause of the increase in inedible peanuts is boring insects. These insects, seeking moisture, bore a hole into the peanut shell, allowing a toxin-producing mold spore to enter the shell through the hole. This renders the peanut inedible.

TOXIN HARMS MEAL
Since the toxin stays with the meal during crushing, the meal is designated non-feed grade. The oil, however, free of the toxin, remains suitable for human consumption.

It will not be possible to estimate the proportion of segregation 3 peanuts until harvesting begins, which will be the middle of August. If the proportion is high, as it was during the drought of 1980 when it reached 12 percent of the total crop, the peanut oil market is likely not to suffer greatly relative to the peanut industry as a whole. Average levels of the segregation 3 peanuts following the 1980 drought were near 4 percent.

The peanut oil market has stayed essentially firm since the price was driven up about two weeks ago owing to fears about the crop damage. The market is experiencing a slow period at the moment in terms of demand, but this is considered both temporary and normal. Generally, large quantities of the oil are bought over a short time, followed by a period of low activity. Business should pick up in a couple of weeks, according to a brokerage source.

Suppliers have been in "no hurry to sell," an industry source says, in light of the def-

initely reduced upcoming crop. Prices are certain to be affected when the industry gets a clearer idea of the extent of the crop damage, and of the quality of the peanuts, which will not be until after the harvest is well underway. In the meantime, peanut oil pricing is expected to remain firm, with fear of a severe short crop making any weakening in the market unlikely.

VEGETABLE OILS

OLIVE OIL — Spain is currently fighting the imposition of additional charges on its olive oil leveled against it by the Common

PRICES TRENDLINES

WEEK ENDING AUGUST 1, 1986

CHANGES/UP

Cottonseed, 41% bulk, Memphis, \$5 per ton
Orease, white, choice, tanks, divd., NV, 1/2c. per lb.
Orease, yellow maximum 10%, 1/2c. per lb.
Peanut, 50% bulk, 2E, \$5 per ton
Tallow, inedible, fancy tanks, divd., NV, 1/2c. per lb.
Tallow, inedible, bleach, tanks, divd., NV, 1/2c. per lb.

CHANGES/DOWN

Cocunut oil, NV, 26c. per lb.
Cottonseed oil, Valley, 1/2c. per lb.
Soybean, 44% bulk, Decatur, \$1.20 per ton
Soybean oil, Decatur, 7c. per lb.

OILS, FATS INDEX

The Oils, Fats & Waxes index reflects the prices of 11 representative materials in this sector and the quantity of each produced in 1985.

Aug. 1, 1986 83.30
July 25, 1986 84.54
July 3, 1986 80.74
Aug. 2, 1985 87.26

Chemical Prices Start on Page 32

Market. Spain is complaining to the Market in Brussels that the additional 35c. per kilo that they must charge when exporting the oil to countries outside the Common Market is giving an unfair advantage to Italy, sources say. Thus far, Spain has resisted paying the added charge.

Prices are quoted between \$172 and \$178 per 100 kilos of Spanish virgin material, and between \$174 and \$180 per 100 kilos of Spanish Riviera grade. Prices have been slowly rising, with a weakening dollar expected to be a contributing factor in another small rise in price before it levels out, a source says.

Expectations of a large Spanish crop and an accompanying reduction in price is contributing to sluggish demand in both the US and world markets, according to industry sources. An anticipated drop-off in Italy's production of the oil should be offset by increases in production in Spain and Turkey, according to the Foreign Agricultural Service.

FATS & GREASES

TALLOW — The pricing on tallow moved up last week by about 1/2c. The market is being called steady, with continued firmness expected.

Quality of tallow has reportedly been a concern lately. Some reduction in quality has been seen in the market lately, due partly to hot weather in the Midwest, which has caused a higher acid content to be found in the tallow, a source says. This has been described as a usual seasonal situation.

Another problem is the relative abundance of dairy tallow on the market. In an effort to reduce the dairy milk surplus on the domestic market, department of Agriculture implemented the dairy Termination Program on April 1 of this year. The government is buying dairy cows to be designated either for

FRIDAY SPOT PRICES

MARKET CLOSE AUGUST 1, 1986

CRUDE VEGETABLE OILS

Cocunut oil, NV 13 1/2
Cocunut oil, Pacific NA
Corn oil, Midwest 17
Cottonseed oil, Valley 17
Linseed oil, Minneapolis 29
Palm oil, NV 14 1/2
Peanut oil, Southeast (restricted) 30
Soybean oil, Decatur 1550

REFD. VEGETABLE OILS

Cocunut oil, LW, NV 18 1/2
Corn, lumb tanks 24
Cottonseed oil, lumb tanks, NV 2550
Peanut oil, lumb tanks, NV 2680
Soybean oil, NV 1880

OILMEALS

Cottonseed, 14% bulk, Memphis 135
Unroast, extracted, 34% bulk, Fargo 150
Peanut, 50% bulk, 2E, Alabama 170
Soybean, unroast, 44% bulk, Decatur 160.50

FATS & GREASES

Orease, white, choice, tanks, divd., NV 5 1/2
Orease, yellow maximum 10%, 1/2c. tanks 5 1/2
Lard, lumb, bulk tanks, divd., Chicago 16 1/2
Tallow, inedible, fancy, tanks, divd., NV 10 1/2
Tallow, inedible, bleach, tanks, divd., NV 8 1/2

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CHEMICAL MARKETING REPORTER

August 4, 1988

OILS, FATS & WAXES

slaughter or for export, with the objective being to eliminate up to 7 percent of the dairy herd. So far, they have slaughtered 650,000 cows, according to Department of Agriculture figures.

The result in the tallow market is an unusually large amount of the yellow, less desirable dairy tallow, a source says.

Export of US tallow is said to be down, making it unlikely that the price will rise any higher in the near future. Competition from lower-priced coconut oil and palm stearine oil is said to be undercutting tallow in the world market.

FATTY ACIDS

TALL OIL — Union Camp Corporation says that it has dropped its prices on tall oil fatty acids (TOFA) by 2c to 3c, and its distilled tall oil (DTO) prices by 2c. The price changes are effective July 21, following Hercules Incorporated's price changes of July 15.

Samples of the Union Camp price changes are "Unitol AFL" currently listed at 22c, and "Unitol DSR" at 20 1/2c. New DTO prices include "Unitol DT 40" at 18c, and "Unitol DT 25" at 20 1/2c.

The weak TOFA market is blamed on stiff competition from low-priced vegetable oils, the fatty acids from which are largely interchangeable with TOFA. Production of TOFA has risen to 114,000 tons for this year, 5 percent over last year's figure. Stocks, meanwhile, have leaped from last year's amount of 8,600 tons to this year's figure of 30,300 tons, according to Pulp Chemical Association figures. Pricing on both TOFA and crude tall oil are expected to decrease further before leveling out.

MISCELLANEOUS

COCOA BUTTER — The cocoa industry was surprised last week when a meeting of international cocoa producers came to an agreement. Although they have yet to formally announce the details of the agreement, it is said to be a buffer stock arrangement, with an established floor price of 85c per pound.

The agreeing countries, including the Ivory Coast, Brazil, Ghana, and Nigeria, will work through a third-party buffer stock manager, a position already in existence, according to an industry analyst. When the price deviates from the median price of \$1.03 by 18c, the buffer stock manager will intervene to balance the market. When the price falls to 85c, he will buy the participating countries' cocoa from traders, in proportion to the individual countries' production levels. When the price rises to \$1.21, he will sell from the buffer stock to the world market.

The prices on cocoa butter, reflecting the surprise felt at the co-ordinated agreement, have risen to the \$2.05 to \$2.10 range. Supply is being called plentiful relative to demand. Prices are expected to weaken by winter or before, since the buffer stocks will take a while to build.

DES Suit Filed In New York State Under a New Law

Three women who claim their health or children were damaged by the anti-miscarriage drug DES sued the drug's manufacturers Thursday, taking advantage of a day-old law.

The women filed suits totaling \$95 million against seven drug manufacturers. The suits, filed in the New York Supreme Court, detailed the problems allegedly caused by diethylstilbestrol, which was marketed until 1971.

The women, who sued under a law signed Wednesday by Gov. Mario Cuomo, alleged the companies knew in 1947 the chemical was useless and unsafe for its intended purpose of preventing miscarriages.

Instead, they said, it caused cancer in users and physical malformations in their children.

One woman said her 5-year-old daughter has undergone several eye operations, wears leg braces and has a damaged nervous system. She was born premature at birth and weighed one pound.

Fiber Accord Ratified by US; 'Cave-In' Seen

The US renewed a worldwide fiber agreement Friday to provide "the maximum possible protection for the American textile worker," but leading lawmakers said the administration "caved-in" to foreign pressure.

Sen. Strom Thurmond (R-SC) promptly called for the Senate to override President Reagan's veto of a tough protectionist trade bill that covers textiles.

US Trade Representative Clayton Yeutter said the overall agreement with more than 20 trading partners came early Friday in Geneva and closes most loopholes in the previous pact that allowed Asian producers' export clothes made of fibers not subject to duties.

"This agreement is worth a lot of money to US textile producers," Mr. Yeutter said. The multilateral agreement is an umbrella agreement setting no numerical limits but provides the framework for negotiating separate deals between individual countries.

Deputy White House press secretary Larry Speakes said, "By renegotiating the MFA, we have provided the maximum possible protection for American textile workers without sacrificing jobs in our healthy export industries or overburdening American consumers."

The "stealthhammer approach" of the President Reagan vetoed, by contrast, said Mr. Speakes, would cost consumers an extra \$44 billion for clothing in the next five years because it would keep out cheaper imports.

John Gregg, chairman of Avtex Fibers, called the MFA renewal "an atrocity inflicted on the textile and apparel industry."

"What our trade negotiators have done is betrayal of the American public and the US industry they were to represent. It's not enough that our trade representatives failed so poorly, but when they attempt to disguise their failure as a success, it's shameful deceit of the American public," Mr. Gregg said.

Mr. Yeutter said the pact closes loopholes for new fibers not previously covered, allows the US to impose unilateral trade limits for years in the case of import surges and contains anti-counterfeit provisions.

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AROMATIC ORGANICS

Phthalic Pricing Is Firming Up, But Ortho Contracts a Problem

Phthalic anhydride producers say the third quarter industrywide 2-cent-per-pound price initiative is sticking, although one producer, with contracts for major customers tied to stable feedstock orthoxyline pricing has been unable to raise its price on those accounts.

Exxon Chemical America's contract arrangements have been "a problem for everybody," comments one rival producer. However, the market "has really snuggled up" over the past several weeks, and this has quieted customers' protests somewhat.

"Demand in the second quarter pretty much exceeded supply," observes another producer, thus bringing the industry "pretty much into balance" at the new price level.

As evidence of the tighter market conditions that have developed, he says that in recent months two rivals' minor production problems provoked considerable concern among some of their customers.

"The industry seems to have come around a great deal," he concludes, as the past couple years' downturn in industry capacity is being felt. Current capacity is rated at 1,075 billion pounds, as compared with 1,515 billion pounds two years ago.

PACE OF ORDERS

One producer says that, even though customers bought heavily just prior to the implementation of the new price level, the pace of orders since the price increase has been satisfactory.

Out of the June to September period, he says, demand usually is slow for one or two months, but has yet to be slow this year. Last year, demand during "the first half was significantly better than the second half, but this year the second half seems to be picking up," he adds.

The outlook for the major end markets — plasticizers, polyester resins, and alkyl resins — is said to be healthy. With 1986 seen by producers as a breakeven year after several years of losses, one comments that 1987 "should be profitable."

Exxon's situation could be different next year, as it is believed that its major contracts are signed on an annual basis. "Exxon would have enjoyed the price increase but couldn't," claims one producer.

It is observed that most or all other producers "have eliminated very low ortho-plus contracts," since these "don't give you any room to raise prices when the market gets tight." Though other contracts in the industry are said to involve orthoxyline pricing, they

do not guarantee a certain differential. Another producer says that he has "seen no evidence that (Exxon) has raised prices on major accounts (even though) the company's plant is more than sold out" and the company has been obtaining supplies from a coproducer. It is believed that the sum of Exxon's major accounts is approximately 40 million pounds per year.

The trade balance for phthalic anhydride is seen by producers as another important element in the market. One producer attributes a large measure of the price increase's success to a recent lessening of import pressure and a pickup in exports.

The level of imports in May fell below 1 million pounds for the first time since last October, while exports for the month reached their highest level since last July.

A producer believes these figures indicate a trend associated with the declining value of the US dollar and strong demand from the

PRICES TRENDLINES

WEEK ENDING AUGUST 1, 1988

CHANGES/UP

None

CHANGES/DOWN

None

AROMATICS INDEX

The Aromatic Organics Index reflects the prices of 14 representative materials in this sector and the quantity of each produced in 1985.

August 1, 1988	167.84
July 25, 1988	167.84
July 3, 1988	167.84
August 2, 1985	167.84

Chemical Prices Start on Page 32

Far East, South American and European exporters are said to have less material to send to the US since they are shipping large quantities to the Far East.

BTX — Basic aromatics prices continue to slide downward on the spot market, as it appears unlikely that Organization of Petroleum Exporting Countries will be able to successfully implement voluntary restrictions on crude oil production, sources say.

Spot benzene is quoted between 65c and 72c per gallon, in a market where buyers are said to be "aim and none." "There's plenty of benzene around," says a trader, but "nobody wants anything now."

This source says that "suppliers are fighting to keep (the contract price) where it is," at 75c per gallon. He observes that, although the market seems weak at the moment, healthy styrene demand and the absence of much hydrodealkylation should provide some stability.

Another source, observing that a Sohio unit in Lima, Ohio is scheduled to resume production this week, speculates that loose market conditions will likely lead to a cut in the benzene contract price level by mid-month.

Spot toluene has fallen to 60c per gallon, sources report, down from 64c per gallon the previous week. It was said last month that heavy purchasing by Amoco Corporation was the major factor behind firm pricing.

"When Amoco was finished," comments one industry player, "nobody else was buying, so the price collapsed." It is observed that low gasoline prices are providing much of the pull on toluene pricing.

Xylene is quoted at 76c per gallon on the spot market, down 3c per gallon from the previous week. Resumed production from Amerasia Hess's St. Croix facility is said to be the primary reason for the change.

CREOSOTE — Pricing in this market has been eroding this year, producers say, attributable to weak demand from the railroad

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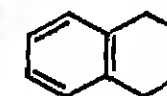
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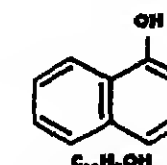
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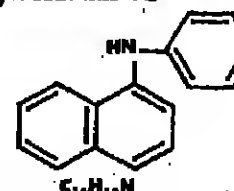
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August 4, 1988

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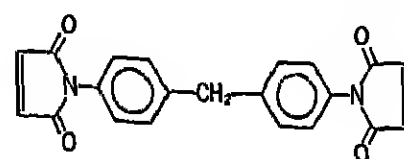
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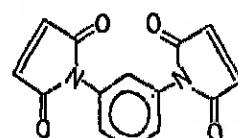
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CHEMICAL MARKETING REPORTER

August 4, 1988

AROMATICS

Industry and the Gulf region, and heavy import levels.

Producers quote a list price level of \$1.25 per gallon, with selling prices said to be at \$1 per gallon. One producer says that the market price a year ago was \$1.13 per gallon.

Railroad tie treatment is the major outlet for cresote, but the railroad industry is depressed due to the nation's declining industrial output. As a result, some lines, particularly in the Midwest and West, are said to be curtailing their maintenance expenditures in an effort to reduce overall costs. One major railroad line has reportedly cut \$40 million from its maintenance budget.

In addition, it is noted that, because cresote is registered as a pesticide, some railroads are turning to alternative products in order to avoid the complicated "regulatory environment."

Falling oil prices have had a strong negative impact on the Gulf region's economy, and have resulted in major spending cutbacks by states in the area. The stretch from Mobil, Ala. to Houston, Tex. is known as the "cresote belt," says a producer, since the moist, swampy conditions make it necessary to treat wood for it to last. Business in this region is said to be the slowest in ten years.

MDI — Two producers of diphenylmethane diisocyanate say the market is very tight and demand is strong. It is believed that three of the four producers are running virtually flat-out, the exception being Dow Chemical USA.

An 8c. per pound first quarter price initiative became a 4c. per pound actual increase last quarter when Dow imposed a 4c.-per-pound temporary voluntary allowance. "The rollback of the price was initiated by Dow, and everybody followed," one producer comments.

Dow has some excess capacity, competing producers say, and any recovery of the 4c. per pound taken from the price initiative is seen as depending heavily on them. Dow is the newest of the MDI producers, having purchased its facility at La Porte, Tex. from Upjohn Company last year.

An aniline supplier last month similarly observed that three of the four MDI producers were running very hard, and commented that this was contributing to tightness in the aniline market. MDI producers say they have encountered some pressure from aniline producers looking to raise prices. It's felt any increase in aniline would have to be passed through to MDI since margins are extremely thin already.

Producers quote list price levels of 91c. per pound for polymeric MDI and \$1.28 per pound for pure material.

PRICE HIGHLIGHTS AROMATICS IN JUNE

	CONTRACT (US \$)	SPOT (US \$)
Aniline	33	24-27
Benzene	80-70	80-77
Cumene	134-134	134-134
Cyclohexene	35125-94125	NA
Phenol	22	19.5
Styrene	18	18.5
Toluene	87-73	80-72
Xylenes, mixed	80	75-83

OMB Budget Cut by House; Veto Possible

The House Appropriations Committee voted last week to eliminate funding for the White House budget office's regulatory review staff and to prevent the activity from being sheltered within another agency's budget.

Several House chairmen have been leading an effort to cut off the staff's funding on grounds that Office of Management and Budget is exceeding its authority by second-guessing the decisions of regulatory agencies, such as Environmental Protection Agency and Occupational Safety and Health Administration.

OMB Director James C. Miller threatened to recommend a veto of the \$13.8 billion Treasury, Postal Service and general government appropriation because of the fight over the \$5.4 million for the office.

"The denial of funds for the Office of Information and Regulatory Affairs constitutes an unacceptable restriction on the executive branch's constitutional prerogatives and its responsibility to oversee regulatory affairs," Mr. Miller said.

OIRA has been under fire from power House members, including Reps. John Dingell (D-Mich.), Jack Brooks (D-Tex.), a Jamie Whitten (D-Miss.), because of its role in the Reagan Administration's war on excessive rules and regulations.

A key part of the attack is a White House requirement that agencies submit proposed regulations to the office for review before they can be formally issued.

Monsanto Sheds

Continued from Page 5

activator, discovered by Monsanto in collaboration with researchers at Oxford University, is believed to have greater specificity than others now under study, and should be marketed late in the decade.

The biotechnology-derived product, designed for treatment and prevention of blood clots associated with heart attacks and other cardiovascular diseases, would be produced by Invitron Corporation and marketed by Monsanto's G.D. Searle & Co. subsidiary.

The Monsanto executive says he is hopeful there will be more arrangements such as the one concluded late last month with Sandoz Crop Protection Corporation under which the two companies will use each other's herbicide active ingredients in the development and marketing of new, cost-effective herbicide formulations (CM11, 7/21/88, pg. 4).

He says the company wants new products to extend its agrochemicals line and will do so through licensing and exchange of technology to go. Mr. Harrison says Monsanto will work with more small producers in the \$1 billion to \$160 million range.

Monsanto is continuing to push for markets internationally. Mr. Harrison says in the first six months of this year, international sales accounted for 25 percent of profits and have at times in the past accounted for as much as 40 percent. "Europe, alone, is over \$1 billion market for us," he says.

Monsanto Polymer Alloys

Continued from Page 7

went into commercial production at Monsanto's Addyston, Ohio, plant in late 1985 and are available now in two injection molding grades as "Triax" 1125 (nylon 66-ABS) and 1120 (nylon 6-ABS) at \$1.70 and \$1.75 per pound in truckload quantities, respectively.

While more expensive on a per pound basis, in-use cost of 6.5 cents to 6.7 cents per cubic inch is more indicative of where the materials fit into the market.

In the lawn and garden market, Mr. Khann says the products have a 20 to 25 percent cost advantage over glass-filled nylon or polycarbonate and make possible production of much tougher parts that are more finished in appearance.

Injection molding grades are currently being used in power tool applications, tool handles and housings for lawn blowers, while the products are being considered for vacuum impellers, lawn mower decks and non-automotive applications. In lawn mower decks, now made of metal, Mr. Khann says he believes the "time is right" for conversion to plastics.

Down the road, Mr. Khann says potential automotive applications include wheel covers, mirror housings and interior applications. Electronic applications will involve hinged connectors and sporting goods applications are being developed in ski boots and safety helmets.

Unlike nylons, which can't be thermoformed and are difficult to blow mold, the new alloys can be blow molded, extruded and thermoformed and are expected to find market niches in chemical resistant packaging and other industrial applications.

All of this adds up to a potential market for 30 million to 50 million pounds of product for non-automotive uses and automotive applications would add "several million pounds" to this total, the Monsanto executive says.

Formal introduction of the new series by Monsanto last week comes barely a month after the company brought out its "Lustran Elite" low-gloss ABS for automotive applications (CMR, 6/30/88, pg. 4).

"That development demonstrated for us in spades the need for an applications approach to the market rather than the historical 'products' focus of the past," says Dr. Philip Brodsky, director of technology for the com-

pany's plastics division in Springfield, Mass. "It led to our first new plant for a specific (market) need," he says.

Similarly, with "Triax" the company says the 1000 series is the first in a family of market-specific products that will come from the new alloying technology.

The company plans a major new applications laboratory in the Springfield area, to be announced later this summer. Dr. Brodsky says, that will be focused toward quick response to customer needs.

It's felt alloy technology is the rapid route to customer requirements, since "you can design virtually overnight," Dr. Brodsky says. He points out that alloys can be developed from existing polymers in as little as two years time at relatively low cost in comparison with the six to 10 years and heavy investment traditionally required to develop a new polymer line commercially. Finally, the use of alloying technology means "we're not limited to a single product or to polymers that we make," Dr. Brodsky says.

As a class, alloys and blends currently represent about 10 percent of the total volume of all plastics, with a current US volume of about 3 billion pounds. However, they also have the highest potential growth rate estimated at 10 to 17 percent annually versus 3 to 5 percent for all plastics.

Celanese Claims

Continued from Page 7

tics. The company plans to open a technical development center in Detroit by 1987, to include not only design and analytical laboratories with computer-aided design facilities, but also injection molding equipment and a parts testing lab for product evaluation. The firm expects this unit to be operating commercially by the 1988 model year.

Trademarks were also announced. Celanese will now market the long fiber reinforced pellets technology products acquired from the British firm Polymer Composites under its own "Celstran" trademark. It will also market polyimidesulfone (PISO) resins under the "Durstem" trade name. Company spokesmen report that research and development are progressing smoothly.

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BioTechnica In Agreement For Know-How

BioTechnica, Ltd., Cambridge, Mass., and Cardiff, Wales, has agreed to apply its patented "fingerprinting" technology to Pioneer Hi-Bred International Inc.'s proprietary organisms used in a silage additive. Pioneer is based in Johnston, Iowa.

In fingerprinting the DNA of Pioneer's organisms, Biotechnica, Ltd. will provide Pioneer with a characteristic pattern for the proprietary strain, which can be used in enforcing patent protection as well as quality control purposes. The particular strains involved are in the *Lactobacillus plantarum* family and are in Pioneer's silage additive products.

FINGERPRINTING TECHNIQUE

BioTechnica, Ltd.'s fingerprinting technique exploits the minute natural variations that occur in chromosomes of living organisms from which a characteristic fingerprint can be obtained.

The technique includes a method for obtaining the highly discriminating patterns and the ability to quantify the certainty of an organism's identity.

In addition to enforcing patent protection the technique can be applied to identification of organisms previously released in nature and then re-isolated for identification. It can also be used for quality control of organisms that may mutate or otherwise change during production or use.

BioTechnica says that this is the first major contract in this area. The company adds that it has recently completed tests which demonstrate a way of fingerprinting plants as well, and is discussing its application to new plant species with companies in the US and Europe.

ChemClear Wins Treatment Contracts

ChemClear, Inc., Wayne, Pa., says it has received more than \$1.3 million in waste treatment contracts in the first seven months of its diversification into field service operations.

The company, which operates four waste treatment facilities in the Northeast and Midwest, expanded its field activities in January to service industries requiring mobile crews for commercial waste cleanup of lagoons, contaminated tanks and drum storage areas.

Carl Cording, ChemClear's president, says the expanded field service operation has grown continuously since its inception, with July accounting for almost one-third of sales since the beginning of the year. "July has been a breakthrough month for this division," he says. "It is impossible to predict the actual impact field service operations will have on our total revenues, but I see it as a significant factor in 1986 and beyond," he adds.

Cyanide Limits Sought Via Bill

Legislation calling for a review of the easy public availability of cyanide was introduced in Congress last week by Sen. Slade Gorton (R-Wash.), with the backing of the over-the-counter drug industry.

Cyanide is the poison that has been cited in 10 drug tampering deaths and five suicides involving non-prescription drugs as well as a rash of recent food tampering threats.

"We have been asking that attention be focused on the lack of distribution and marketing controls for this deadly poison," says James D. Cope, president of the Proprietary Association, a trade group representing makers of non-prescription medicines.

Sen. Gorton's bill calls for a review by Environmental Protection Agency of the manufacture and distribution of cyanide.

"We commend Sen. Gorton for taking the lead on this important issue," says Mr. Cope.

Tax Shift Hit By Senate Side

Senate tax writers reacted negatively last week to a new proposal from House negotiators for a multibillion-dollar increase in corporate taxes, saying the plan could derail efforts to draft a final version of tax-overhaul legislation.

"It is questionable whether we will have a bill," said Sen. John Danforth (R-Mo.), as he entered a closed meeting of the Senate bargaining to discuss the House plan.

"I don't consider it a proposal," added Sen. Malcolm Wallop (R-Wyo.).

The strong reaction appeared, however, to be aimed more at staking out a bargaining position than sending a signal that there are insurmountable problems in reaching a compromise.

House tax writers were expected to formally offer the comprehensive package to the Senate Friday as a counteroffer to a \$30 billion revenue-raising plan the senators proposed Tuesday.

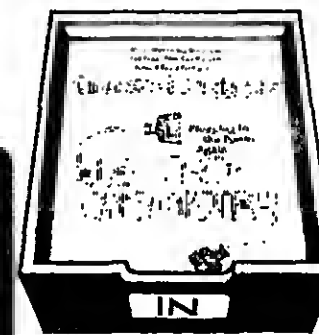
House Democrats, who drafted the new package, said billions more than the Senate offer, especially from business, would be necessary before there can be agreement on a compromise version of the sweeping tax legislation passed by each chamber.

Nonetheless, the House was making some concessions to the Senate in the new proposal. House members want to scale back considerably special tax benefits for the oil and gas industry. They agreed to a greater depreciation allowance for business than the House had originally favored but still considerably less than under the Senate bill.

But initial reaction from the Senate was negative. "I don't think there's any room to compromise with their proposal as I understand it," said Sen. Danforth.

"It would cause great damage to our country—loss of jobs," he said.

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ALIPHATIC ORGANICS

Butadiene Values Declining

Continued from Page 7

1985, and 800 million pounds brought in from offshore in 1984. In the 1983 through 1984 period, about 30 percent of US consumption was imported, and most of that offshore material came from Europe.

US markets were in fact a "safety net for European butadiene," the analyst asserts. The shift to heavy cracking greatly reduced US needs for foreign butadiene, but, he explains, "to maintain market share, the Europeans just kept lowering the price."

The crude oil price plunge has not affected European feed states as dramatically as US states. European plants predominantly crack naphtha and the crude plunge hasn't made that dramatic a difference. It's estimated European olefins producers were previously cracking about 85 percent naphtha, and have now moved closer to 100 percent.

Market observers say that additional price declines are possible because of the oversupply situation, but at some point the market will bottom. Clearly, the price can't drop below fuel value of the material.

"European producers are at the point where some might choose to burn it," says an observer, though he adds this hasn't started happening yet. Some companies are recycling the material, however.

European and Canadian producers would be the first to find themselves exploiting butadiene for fuel value as the price declines, since offshore producers have to factor in increased transportation costs, as well as other increased costs associated with selling in distant markets.

If the price falls to between 11 and 12 cents per pound, it's believed many European and Canadian makers would be forced to burn, rather than sell, butadiene. The price would have to drop a bit lower for US makers to find themselves in the same situation.

US companies are reported looking at recycling the material as an option, but the technology is difficult.

CURRENT DEMAND CLIMATE

Assessments of the current demand climate range from "a bit better than last year" to "flat or down slightly."

Styrene-butadiene rubber production is down as of April 1986, as compared to the same period in 1985, while polybutadiene production is flat to up slightly.

Overall, styrene-butadiene rubber, nitrile rubber and polybutadiene consumption of butadiene have declined by 3 percent in the period January through June, 1986, when compared to the same period last year. These end-markets account for over 80 percent of US consumption of butadiene.

ETHYLENE — Producers report that contract selling prices for ethylene stand at 14c per pound, about where they were one month ago. "I don't perceive any price increase for July," says one maker, when asked about price hikes that had been sought.

"There are a lot of pounds that haven't been settled," however, the maker says. Producers also tried to raise selling prices in June, with a similar lack of success (CMR 7/7/86, pg. 18).

Customer perception of low feedstock costs is often cited in explaining the stalled ethylene selling price, particularly in light of an improving supply and demand position for the industry. "I think that is the only thing

preventing an increase," one ethylene man says flatly.

Meanwhile, demand has been strong, and several sources describe the current market as tight. "There just aren't any extra pounds out there," says a supplier, who also notes that inventory building has not been significant.

He argues that the recent hurricane—Bonne—helped lighten the supply picture as several olefins units lost some production time.

Among strong and markets, ethylene suppliers cite polyethylene as performing particularly well.

On the horizon are scheduled turnarounds for maintenance of three large crackers due in the fourth quarter. This will contribute to further tightening of the market, producers say.

METHANOL — Price was quoted last week at 30 cents per gallon, Gulf Coast, in contract transactions. While one maker says that some activity may be taking place be-

PRICES TRENDLINES

WEEK ENDING AUG. 1, 1986

CHANGES/UP

None

CHANGES/DOWN

None

ALIPHATICS INDEX

The Aliphatic Organics index reflects the prices of 20 representative materials in this sector and the quantity of each produced in 1985.

Aug. 1, 1986	222.81
July 24, 1986	222.81
July 4, 1986	222.81
Aug. 2, 1986	203.81

Chemical Prices Start on Page 32

30c. per gallon, another says that his company is taking no contract business below the 30c. level.

The current price is down 2c. from the 32c. level that producers quoted one month ago. One cites basic supply and demand pressure on the price level as the reason for the decline, but a competitor disagrees.

He asserts that behavior of some sellers has more directly to do with the price slip than the actual ratio of supply to demand in the current market.

This supplier says that not all producers are in an oversupply position right now, but some makers are carrying considerable material they would like to bring to market. These sellers, he claims, do not have established customer bases, and therefore resort to undercutting to move their material.

"Those who have a good mix of supplies and contract business are not hurting for volume," he claims.

Another producer says that inventories are high, because the summer is an off period for cold weather products like antifreeze and windshield wash fluid. He also cites reduced demand for oil field products because of the depression in the domestic oil exploration industry.

Demand is strong, he says, for MTBE, formaldehyde, and acetic acid, which together make up about 80 percent of what the methanol demand. While his view of the short-term market is somewhat more pessimistic than his competitor, this producer foresees an improving supply and demand balance at the start of the fourth quarter.

This will arise, he says, from firming demand for seasonal products containing methanol as well as increased demand for MTBE as new capacity for the octane enhancer continues to come on stream.

A competitor points out that the full effect of several temporary shutdowns of Canadian capacity has yet to be felt. He also says a US producer is scheduled to halt production in the third quarter. These capacity adjust-

PRICE HIGHLIGHTS

ALIPHATICS IN JUNE

	JULY (US \$)	JUNE (US \$)
Butadiene.....lb.	.13	.13 1/2
Ethylene.....lb.	.14	.14
Ethylene Glycol.....lb.	.18	.18
Methanol.....gal.	.30	.32
Propylene.....lb.	.08 1/4	.09 1/4
Vinyl Chloride.....lb.	—	.16 1/4

ALIPHATICS

ments will further improve what is already a fairly favorable supply and demand balance, he says.

PROPYLENE — The price of chemical-grade material is reported at 9 1/4c. per pound. A polymer-grade producer says that material is selling for 10 1/4 to 11c. per pound.

A chemical-grade producer attributes the price decline from last month's level in part to aggressive marketing on the part of one player in the market.

Another maker foresees an increase in supply of chemical-grade material for the third quarter as a result of the move toward heavy feeds at olefins crackers. "Anybody who has the ability to crack naphtha and gas oils is doing so," he says.

But scheduled turnarounds and the move toward heating oil production will lower output of coproduct propylene, another maker notes.

Ground Water

Continued from Page 5

ground water protection across the nation, the report says.

Among the programs reviewed was Connecticut's ground water classification system, which characterizes water based on use and quality.

In Connecticut, potentially contaminating industries and other water-threatening land uses are prohibited from locating in sensitive or valuable ground water areas.

On Cape Cod, Massachusetts' rapid growth and development is threatening the only source of drinking water in the area. Local efforts include adoption of health regulations and zoning by-laws to control sources of contamination, the definition and management of recharge areas for public wells and the collection of household hazardous waste to prevent its disposal in landfills.

New Jersey has a unique approach to cleanup and control of hazardous waste that places the responsibility for cleanup on industry before property can be transferred to a new owner, Mr. Cortese said.

The N.J. Department of Environmental Protection has the power to void any sale of property not in compliance with the law. "The program has been controversial and costly to industry but very effective," he said.

The report says some rough estimates show that 1 percent to 2 percent of the country's ground water may be contaminated. More than 225 different chemical, radiological and biological substances have been detected in ground water across the United States.

Since 1984, Mr. Cortese has been a member of the National Resource Council's ground water quality protection committee, which included experts from universities, industry and public interest groups.

The committee recommends that:

- States should consider classifying their ground water through a mapping program that identifies critical areas and resources for special protection.

- Each state should develop a comprehensive program for monitoring and inspecting chemical and petroleum storage tanks.

- States should consider regulatory and economic incentives for companies to de-

velop ways of reducing hazardous waste at the factory.

- The Federal government should provide money for states and localities to develop and implement ground water management programs on the condition that within a certain time frame, the programs are self-supporting.

- States should consider registering and issuing permits for pesticides, as well as banning or restricting the use of pesticides that are most threatening to ground water supplies.

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Bioreclamation Budding H₂O₂ Market

Continued from Page 3

gasoline pipelines in Ambler, Pa. In 1971, A Sun Petroleum microbiologist, Richard Raymond Sr., had discovered that hydrocarbon-utilizing microorganisms could be used to degrade the gasoline given the right stimulation. He originally introduced oxygen to the microbes by pumping air below the surface, a technique called air sparging.

Dr. Raymond, who is the founder of Biosystems, found several years ago that hydrogen peroxide is often a far more efficient source of oxygen to the subsurface than air sparging.

FMC says that peroxide can provide 500 parts per million of oxygen to the soil, while air sparging provides only 8 parts per million and pure oxygen imparts 40 parts per million. Up to seven pounds of peroxide may be needed to degrade a single pound of contaminant, according to FMC. Biosystems says 3 pounds of oxygen, equivalent to 12 pounds of H₂O₂ may be required.

The primary source of underground con-

tamination is leaking underground fuel and chemical storage tanks. A recent Environmental Protection Agency study found that perhaps 35 percent of the estimated 800,000 underground motor fuel storage tanks in the US leaked portions of their contents. EPA says perhaps 800,000 other kinds of storage tanks are buried around the country.

Proponents say bioreclamation is rapidly gaining favor as a preferred technology in treating these spills, and argue that existing technologies insufficiently correct the problem of underground hydrocarbon contamination.

Dr. Joan Berkowitz, vice-president of hazardous waste management at Arthur D. Little, Inc. says she prefers the in-situ process over excavation of a contaminated site because "it can get a site clean without risks associated with digging, such as dust."

Bioreclamation also eliminates the need for landfilling the excavated soil. Dr.

Berkowitz points out, thereby complying with Federal guidelines to sharply reduce landfill storage, while also eliminating the continuing liability of keeping hazardous materials in landfills.

Another mechanical treatment effort is pumping the contaminated groundwater out and treating it. This method, critics argue, is a time-consuming process, and does not take care of the large amounts of pollutants that adsorb to the soil matrix.

Richard Raymond, Jr. vice president and general manager at Biosystems, recounts that a cost analysis study of an underground residual oil spill in Florida found that pumping the contaminated groundwater out and sending it to a treatment facility would take 80 years to suitably clean the area and would cost \$2.3 million (1986 dollars). The same project employing bioreclamation with H₂O₂ as the oxygen source was expected to take two to three years and cost \$900,000.

Sources hasten to add, however, that bioreclamation is not a catch-all solution to cleaning up underground pollution. For one thing, soil conditions may not be right. Clay,

for example, is not very permeable. Mr. Raymond Jr. says, and it is timely and expensive to move water (with the nutrients and peroxide contained in it) through the ground formation.

Another limiting factor is that the technology is currently only suitable for treating petroleum products and simple petrochemicals like phenols and formaldehyde. Sources say bioreclamation is currently not used to treat complicated hazardous wastes such as chlorinated solvents, PCB's and dioxin.

Furthermore, even advocates of the technology admit that not enough is known about how the bioreclamation process works. Joseph Westwood, business manager for hydrogen peroxide at E.I. du Pont de Nemours & Co., a supplier of H₂O₂ to Biosystems, says more work needs to be done before the process becomes a commercial success.

He says the work is done underground in an uncontrolled environment, and it is difficult to determine what is taking place. He adds, though, that Du Pont believes these problems will be resolved within the next eighteen months, at which point "significant quantities of peroxide will be consumed."

One of the keys to bioreclamation is controlling the reaction of peroxide with bacteria, according to Dr. Richard Brown, technology manager of FMC Corporation's Aquifer Remediation Systems, the company's environmental services unit.

He points out that peroxide, while an extremely efficient source of oxygen for the bioreclamation process, is a mild biocide. He says FMC has learned to control the reaction by using chelating agents as stabilizers to control heavy metal ions and prevent premature peroxide decomposition.

For all its promise, bioreclamation is still in its infancy and relatively few projects are underway, sources say. Mr. Raymond of Biosystems says the industry is currently generating only about \$5 million in sales, and Dr. Brown estimates that only "a couple hundred thousand pounds" of peroxide are currently used in this field.

Yet they and others say interest in the technology is rapidly growing among underground storage tank owners, oil refiners, chemical firms, and state and Federal environmental authorities.

If the state and Federal governments push owners of leaking tanks into taking quick and effective remedial action, Mr. Raymond estimates the business may surge to \$100 million in sales within four years. Dr. Brown says a "very conservative estimate" would place the demand for peroxide in bioreclamation at 10 million pounds a year in the next three to five years.

At this stage, though, a noticeable lack of Federal and state initiative in addressing the problem of underground pollution from storage tanks is what's hindering the industry back, according to Michael Doolson, application services manager for Houston-based peroxide producer, Internex Americas, Inc.

He says underground gasoline spills will develop into a major environmental issue over the next decade, and the government will partly determine how quickly the market for remedial action will grow.

EPA is currently studying the issue under the auspices of its Office of Underground Storage Tanks, which was formed in 1984. The agency says it expects to propose rules governing design and construction, repair and monitoring and clean-up of petroleum, gasoline and chemical tanks by early next year, but an agency spokesman says they probably won't become law before early 1988.

Mr. Dodson contends that little action will be taken by the private sector until these rules, and similar ones promulgated by the states, are put in place. Reflecting this opinion, he estimates that peroxide application in bioreclamation will reach only 2 million to 5 million pounds in 1990. Yet he does remain bullish on the technology's long-term potential, estimating that peroxide demand in the field will eventually reach 20 million to 40 million pounds per year.

Need a Quick Study?
Chemical Profiles

DRUGS & FINE CHEMICALS

Parabens Hike Is Successful, But Margins Are Depressed

Paraben producers and marketers say that their early-Summer price initiative was for the most part successful. Many add, however, that the increase was not much more than a pass-along of increased costs and that margins are still depressed.

April 1 and May 1 hikes or TVA reductions of 30 cents per pound were announced by the US producer Napp Chemicals, Kalama Chemical and Mallinckrodt.

In addition, Ueno Fine Chemicals, a supplier of Japanese parabens, raised its price by 30 cents per pound, and an importer of Israeli parabens reports receiving an equal increase from his supplier, which was passed along to consumers.

A related early-Summer increase was a 30-cents-per-pound increase for the paraben raw material para-hydroxybenzoic acid (PHBA). This hike was announced by the supplier Kanematsu-Gosho (USA), but sources say that other PHBA suppliers registered similar increases.

Observers say that both increases were necessitated by the recent change in the value of the dollar as compared to the Japanese yen and the German mark. Such a change affects domestically produced parabens as well as imports because, with one exception, US producers must purchase raw material PHBA from overseas.

One source notes that contributing to the PHBA hike was the September 1985 expiration of an International Trade Commission temporary duty suspension on the product that had been in effect since early 1983. Since September 30 of last year, the previously duty-free PHBA has been saddled with a 7.9 percent duty when coming from most favored nations like Japan and West Germany.

Most of the world's PHBA is produced by Ueno of Japan and Bayer of West Germany. In the process of joining their ranks, however, is Napp Chemicals, which is on stream with PHBA capacity in Lodi, N.J. A spokesman says that merchant sales are eyed down the road when the plant is running at full capacity.

All involved in the parabens business say that essentially every account not protected by contract is now paying more for parabens than four months ago. Some sources, however, contend that for both the parabens and PHBA, the net increase has been closer to 15 or 20 cents per pound.

Sources say additionally that the increase does not eliminate the fact that the business is oversupplied and growing at 1 or 2 percent per year at best, with population-spurred growth partially offset by competition from other preservatives.

Sources now put methyl paraben selling

prices in a range from just over \$3 per pound to about \$3.50 per pound. Propyl paraben prices are 20- to 30-cents-per-pound higher. PHBA prices are said to be in the \$1.95 to \$2 per pound range.

Methyl paraben list prices now range from \$3.32 to \$4.60 per pound, the higher price with an unspecified TVA attached. Propyl paraben is list-priced 20 to 30 cents per pound higher. PHBA now lists, according to one supplier, at \$2.40 per pound. All prices are f.o.b. plant or stock point for truckload quantities.

BIOTIN — Feed-grade prices are considered strong by a producer. One-percent grade is listed at \$35 per kilogram, but one

PRICES TRENDLINES

WEEK ENDING AUG 1, 1986

CHANGES/UP

Vitamin E, \$2 per kilo

CHANGES/DOWN

None

DRUGS INDEX

The Drugs & Fine Chemicals Index reflects the prices of 10 representative materials in this sector and the quantity of each produced in 1985.

Aug 1, 1986	211.18
July 25, 1986	211.18
July 3, 1986	211.16
Aug 2, 1985	211.16

Chemical Prices Start on Page 32

spokesman says actual selling prices are sometimes as low as \$33 per kilogram.

Growth is called rapid by one spokesman, who estimates overall growth over the past two years at 20 percent. He says that poultry and swine feed applications have represented much of the growth, and that during the past two years, swine growth has been slightly higher than poultry growth.

The food side is considered rather stable by two spokesmen. One says the list price is \$8 per gram, but that it falls for as low as \$4.80 per gram. Another spokesman says the actual selling price can be as low as \$4 per kilogram.

VITAMIN E — Hoffmann-La Roche Inc. has announced that, effective immediately, it is increasing its price for pharmaceutical grade liquid vitamin E to \$20.50 per kilo from \$18.50 per kilo.

A spokesman says the move represents an attempt to return pricing to normal levels. Vitamin E is said to have commanded as

DRUG & FINE CHEMICAL EXPORTS: MAY

BUREAU OF CENSUS FIGURES ON THE KEY DRUGS.

	QUANTITY	VALUE	QUANTITY	VALUE
Antibiotics:				
Ampicillin and salts, bulk	110,168	1,261,393	916,161	1,391,899
Erythromycin	48,233	7,337,897	48,489	7,775,468
Penicillin G, bulk	114,231	5,576,554	88,077	2,815,099
Penicillin G, salts, bulk	1,283,981	419,623	1,651,722	407,625
Tetracycline	11,919	6,848,778	1,205	1,846,235
Aspirin	162,771	251,511	975,888	500,750
Caffeine and deriv.	15,161	40,040	82,422	216,440
Citric acid	440,988	475,714	678,480	605,148
Glutamic acid and deriv.	4,465	914,582	1,273	146,847
Hormones:				
Corticosteroids, naph	6,450	8,985,858	7,628	8,448,848
Nonsteroid hormones	2,241	1,810,567	1,383	705,018
Prednisolone and esters salts	4,250	6,405,555	5,848	4,435,276
Steroid hormones and synthol	21,841	4,866,486	50,810	4,114,143
Sulfonamides, bulk	55,329	848,004	71,016	903,907
Vitamins:				
Ascorbic Acid	105,782	427,355	169,470	740,825
Vitamin A and Pro-vitamin A, bulk	68,954	70,507	77,885	140,855
Vitamin B ₁ (thiamine)	14,889	125,552	2,114	33,593
Vitamin B ₂	1,223	23,124	3,340	45,516
Vitamin C	81,345	1,280,992	107,223	1,535,884
D and Of panthoic acid	4,410	37,420	4,784	27,394
Nicotinamide and nicotinamide	43,190	155,571	27,522	27,394
Vitamin K	120,442	672,183	169,099	845,347

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DRUGS & FINE CHEMS

much as \$25 per kilo prior to price erosion in 1982.

The Roche announcement follows a similar announcement made by BASF Wyndotte Corporation, the other major US vitamin E producer, that was effective July 1 (CMR, 6/23/88).

COD LIVER OIL — Prices continue to firm as tight supplies and increasing demand create raw material shortages termed "the worst we can remember" by one importing firm.

Sources say a poor cod fish catch in the North Atlantic is to blame for the supply tightness. An increase in the seal population because of a ban on seal hunting, says one importer, is reducing the cod population as well as sending the fish away from traditional fishing grounds.

Sources quote oil prices ranging from \$7.75 per gallon for container-load quantities to \$8.50 per gallon for smaller purchases. One says these prices represent a two-fold increase from a year to a year-and-a-half ago.

Bureau of Census figures show that imports are down about 9 percent through June of this year, to 1.7 million pounds. Declared value for shipments through June, on the other hand, is up almost 20 percent.

One importer reports that, for the time being, he is taking on no new accounts. He adds that there have been other fish oils on the market which are being passed off as cod liver oil, and warns, "let the buyer beware."

Cod liver oil demand is said to be up as public awareness of cholesterol-reducing omega-3 fatty acids grows. Some fish oils contain the acids, which have been receiving a fair amount of media attention of late.

Electronics Industry

Continued from Page 9

change in attitude from cautious optimism to resigned pessimism for 1988.

C.H. Kline & Co. reports that the worldwide electronic downturn was aggravated in the United States as lead times built up for semiconductor orders in 1984. Double and triple orders were being placed to protect electronic equipment producers against production stoppage caused by device allocation.

This resulted in an apparent increase in the demand for semiconductor devices. Producers dramatically increased production, which resulted in a dramatic increase in semiconductor consumption.

The resulting increase in semiconductor production satisfied most system producer's orders for circuits. Inventories began building and companies began to cancel excess orders. The result was a significant buildup in both fabricators and system producers inventories by the end of 1984.

Coupled with the general slowdown in the

electronics industry, the sales of semiconductor dropped precipitously as a result of significant drawing down of excess semiconductor inventories by system producers.

In addition, further drawing down in inventories of semiconductor fabricators caused electronic chemical and material suppliers to be hit exceptionally hard, according to Kline.

Kline forecasts that freeworld demand for electronic systems and equipment will reach \$356 billion in 1986 up from \$320 in 1985. Geographically, the United States will rank first in consumption at \$210 billion or 80 percent of the total. Western Europe follows at \$100 billion accounting for an additional 28 percent. The balance of free world consumption is accounted for by Japan at 10 percent and Pacific Rim at 2 percent of demand.

On the component side of the business, Kline projects world semiconductor production at \$34 billion in 1986 up from \$27 in 1985. As a result of a 33 percent increase in value the yen to the US dollar, and a moderate increase in production levels Japanese semiconductor output is forecast to reach \$15 billion, an increase of 11 percent in yen and 50 percent in US dollars.

US semiconductor production, hit exceptionally hard in the recent industry downturn, is forecast to reach \$14 billion in 1986 up from \$13 billion in 1985 increasing approximately 8 percent. This moderate increase should result in the bottoming out of semiconductor inventory levels among both fabricators and users in 1986.

The US printed wire board industry in comparison is expected to show more controlled growth with production reaching only \$4.7 billion in 1986 up from \$4.6 in 1985 increasing only 4 percent. Typically in this industry, low board inventory levels result in a less cyclical business with smaller swings in growth and decline than the semiconductor industry.

In the US, the Kline survey forecasts the demand for electronic chemicals and materials to reach \$3.3 billion in 1986 up from \$3.1 billion in 1985. The largest product segment is substrates including printed wire board laminates and semiconductor wafers. The demand for substrates is estimated at \$1.3 billion, accounting for an estimated 39 percent of US consumption of electronic chemicals and materials in 1986.

Plating chemicals rank second in demand, representing 21 percent, followed by packaging materials and photoresists with 9 percent and 6 percent respectively. The remaining 35 percent of the demand is made up of 10 other major product categories, each representing any different chemical and material types.

The consumption of electronic systems in the US is forecast to reach \$370 billion in 1991, up from \$210 billion in 1986, increasing fairly steadily at an average rate of 12 percent a year in constant dollars.

US semiconductor production, which was very hard hit in this recent downturn, is expected to remain a fairly cyclical business, showing signs of a comeback later this year.

Vaccine Rescue Bill Urged

Continued from Page 9

the same result, "children will be denied access to necessary immunizations."

The House bill would provide a fair balance between a simple and quick compensation process and the tort system, and assures prompt and reasonable settlements for all justified claims resulting from vaccine injury, Dr. Smith testified.

Equally important, he added, it would preserve an adequate supply of effective, affordable vaccines and would demand research and field testing of improved vaccine products.

"Although the courts have played an important role in protecting our children from negligent acts, the traditional tort system has poorly served the small number of children who suffer vaccine injury. In fact, it has served to contribute to this critical public health problem by reducing the number of manufacturers, escalating vaccine costs and retarding research for new and improved vaccines," Dr. Smith said.

Under the tort system, he said, parents wait years for the resolution of lawsuits while the immediate needs of their children may be compromised. "Few eventually win settlements; many others do not," Dr. Smith observed.

He reminded the panel that little time re-

mains to pass legislation this year. "If we do not move this issue to completion in this Congress, we may be challenged by another serious disruption in our immunization program. This means that the fate of many American children rests in your hands."

John Lyons, vice president of Merck & Co., advised the subcommittee to change the bill to make manufacturer's compliance with government market approval requirements a defense to any liability.

Robert Johnson of Lederle suggested revisions in the tort reform provisions of the proposal. He said the bill "appears to leave the tort option open and unlimited in all cases in which a jury might choose to characterize a manufacturer's conduct as wrongful."

Because this language is vague, he said manufacturers are concerned that they may not gain protection against "large, unpredictable damage awards."

An organization of parents whose children were damaged and in some instances died after taking the DPT shot, said they oppose the bill because it does not offer adequate compensation to victims or provide incentives for manufacturers to develop safer vaccines.

"This bill will go more to protect the profits of drug companies than the health of America's children," the group's spokesman told the congressmen.

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Fertilizer Group Says US Policy Ruins the Market

American farm policy has virtually eliminated the farmer's chance for marketplace profitability, except where the new marketing loan program has been implemented, a fertilizer industry spokesman told Congress last week.

"Even though we now have a market-oriented farm bill, we have not made use of the tools available to market our wheat and feed grains," said Ron Johnson, who spoke on behalf of the Fertilizer Institute as the Senate Agriculture subcommittee on foreign agricultural policy met to review the 1985 Farm Bill's impact on exports.

Mr. Johnson, formerly an executive with Agrico Chemical Company, said the US has "surrendered in the export market," making farmers "more—rather than less—dependent on the government."

The industry spokesman said the only positive trade impact resulting from the new law was a sharp rise in cotton and rice exports.

"Clearly, the reason for this tangential improvement is the new marketing loan program which was required for these products," he added.

Mr. Johnson called on congressional leaders to implement a marketing loan to relieve the 2 million bushel wheat surplus and 5 billion bushels of stockpiled corn.

Mr. Johnson said the estimated \$35 billion which government will spend this year is twice the original estimate.

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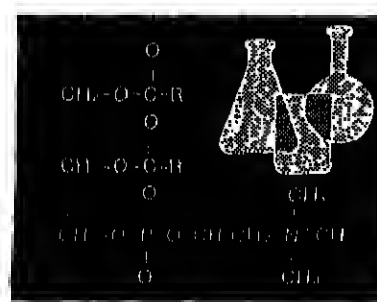
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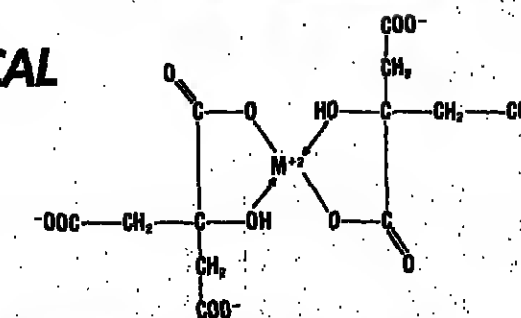
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Superfund Pleases Critics

Continued from Page 3

bill is the establishment of a Federal community right-to-know program. Cathy Hurwit, legislative director of Citizen Action, says the program is a "milestone" because it requires chemical companies to report to state and local officials the amount and location of hazardous substances they produce, handle and store.

In addition, facilities that manufacture, process or use at least 25,000 pounds per year of any chemicals on a list of 311 hazardous substances must report annually on routine emissions to each environmental waste stream.

"The events in Chernobyl, Bhopal, West Virginia and even in New Jersey involving accidental chemical releases have made it abundantly clear, that you have to hope for the best, but plan for the worst," says Sen. Frank Lautenberg (D-N.J.), who played a key role in writing the right-to-know provisions.

The environmental groups say they are also satisfied that the legislation requires the use of permanent solutions and treatment technologies in the cleanups, which must meet standards set by other Federal health and environmental laws before Environmental Protection Agency could declare them complete.

UNIFORM STANDARDS

Rep. Florio says the provision establishes "uniform, verifiable, national cleanup standards" that will "tell us how clean is clean" when EPA completes work at a superfund site.

Daniel Becker, legislative counsel for Environmental Action, notes that the bill provides a more generous statute of limitations for persons suing for compensation for exposure to toxic substances.

In many states, plaintiffs must file suit within three years of exposure, says Mr. Becker, although the effects of hazardous materials may not become apparent for 10 to 30 years.

The new superfund law establishes that the statute of limitations for states will run from the time the victim discovered the injury and knew or should have known about the possible connection with the release of the toxic substance, he says.

The measure will send a strong message to polluters that their liability will not expire shortly after they dump hazardous wastes into the environment, Mr. Becker adds.

Janet Hathaway, legislative representative for the National Wildlife Federation, says the bill will support EPA in reaching out-of-court settlements with responsible parties for the full cost of clean ups. The provisions to encourage settlements are key, she says, because EPA expects private

parties to conduct one-third of the cleanups during the next five years.

Miss Hathaway says citizens suits represent "both a victory and a defeat for us." The conference has agreed to allow citizens to sue EPA or companies for failing to comply with the law. But the conference dropped a provision that would have allowed citizens to sue companies to stop and "imminent and substantial endangerment" caused by a hazardous waste disposal site, she says.

A toxic waste site can be hazardous with out reflecting a violation of the law, Miss Hathaway explains.

The representatives say they are disappointed the bill will give EPA major discretion over the pace of toxic waste dump cleanups. The bill requires cleanups to begin at 375 sites during the five-year program but does not require the completion of the work.

There are nearly 900 dump sites on EPA's list of sites requiring priority cleanup, and agency officials have predicted the list will grow to 2,000 in the next several years.

But the environmentalists say, at the current pace of cleanup, EPA will be cleaning up superfund sites well into the next century.

"You don't have anything that pushes EPA to do more sites more quickly," says Blake-man Early, Washington representative of the Sierra Club. "That's going to have to be done through public pressure and constant vigilance."

The conference committee retained the strict, joint and several liability provisions of the current law.

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Formaldehyde Study Condemned

Continued from Page 5

hyde is safe, both in the workplace and in consumer products.

The study was co-written by nine researchers, including two from E. I. du Pont de Nemours & Co. and one from Monsanto Company. It was paid for and supervised by NCI.

Dr. Philip J. Landrigan, former director of epidemiology for the National Institute of Occupational Safety & Health (NIOSH), said NCI departed from scientific norms by agreeing with participating companies to keep secret the 10 plants chosen for study and the criteria for selecting them.

Rep. Ron Wyden (D-Ore.), noted that NCI briefed several formaldehyde manufacturers on the results of the study last September, but refused to release details to Federal government agencies or labor unions until the study was made public five months later.

The question of industry's involvement in the study was also raised by Rep. John Din-

gell (D-Mich.), who said a provision in the study protocol required that technical changes in the design had to be agreed to by industry representatives.

"It literally gives them a veto, doesn't it?" Rep. Dingell asked Aaron Blair, the NCI epidemiologist who headed the project.

"You might interpret it that," Dr. Blair responded.

The congressmen also criticized Dr. Blair for dismissing the opinions of five of six advisory panelists who disagreed with the conclusion that there was little evidence of a link between formaldehyde and cancer.

In a letter to Dr. Blair in April, the scientists said he had interpreted the study's findings too optimistically and maintained they were actually inconclusive.

But Dr. Blair said he is "absolutely confident" about the study's methods and conclusions. "I have never claimed that the study exonerates formaldehyde," he told the panel. "I said there is little evidence (linking formaldehyde and cancer)."

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COATINGS & PLASTICS

Carbon Black Prices Follow Downward Path of Oil Costs

Carbon black prices continue to fall, in tandem with raw material costs. Columbian Chemical Corporation, J.M. Huber Corporation and Sid Richardson Inc. all cut prices by 1 cent per pound, effective July 24.

In addition to declining carbon black oil prices, the carbon black market is burdened with overcapacity and weak demand.

Many producers thought carbon black prices had bottomed out in March, when they fell 3.25 cents per pound, reflecting a drop in carbon black oil prices to \$15 per barrel from \$21.50 (CMR 3/31/86, pg. 25).

Since March, oil prices have declined even further, to a current level of \$9.50 per barrel, while carbon black selling prices have fallen a total of 2.75 cents per pound since March.

CURRENT SELLING PRICES

Current bulk selling prices for Sid Richardson's tread grade products N-330 and N-339 are 22.25 cents per pound and 23 cents per pound, respectively. Bulk prices for other representative grades include N-550 at 21.25 cents per pound, N-880 at 20.75 cents per pound, N-298 and 24 cents per pound and N-774 at 21 cents per pound (paper bag quantities for all grades cost an additional 3 cents per pound).

Bulk selling prices for Huber's N-500, N-299 and N-700 are given as 21.25 cents per pound, 24 cents per pound and 21 cents per pound.

Sources estimate that the industry is currently running at just under 80 percent of a total nameplate capacity of approximately 3.2 billion pounds. In May, the capacity utilization rate was about 83 percent; it dropped to 80 percent during June (the slowest time of the year for this market) and has remained at 79 to 80 percent for July.

Domestic demand is said to be around 2.5 billion pounds per year. One producer adds that current production only slightly exceeds demand, and inventories are low.

US producers have been hurt by rising imports, which affect the all-important tire market, as well as imports of carbon black itself.

Canada and Mexico together account for 95 percent of total carbon black imports, which fall to 5.3 million pounds in May from 10.5 million pounds in April. The sharp decrease is attributed largely to a May strike at Cabot Corporation's Ontario plant.

Domestic carbon black exports, meanwhile, rose to 33.5 million pounds in the first six months of this year, compared to 25.2 million pounds in the same period last year. Most of the material exported consisted of specialty industrial rubber grades.

US producers are still seeking imposition of countervailing duties against Mexican material entering the US, saying Mexican producers enjoy an unfair raw material cost advantage. Legislation is also pending in Congress that would impact imports of carbon black from Mexico.

Phillips, one of the major players in the US market, sold its carbon black operations, both domestic and international. It divested its share of the "Sovaco" facility in the UK, which Columbian Chemicals Inc., its partner, took over. Columbian is also said to have

bought a Phillips Plant in Hannover, Germany in June.

Its German production capacity was bought by Degussa AG of Germany in March. Sid Richardson bought its Borger Texas "Philblack" plant in April, and Huber ac-

PRICES TRENDLINES

WEEK ENDING AUG 1, 1986

CHANGES/UP

None

CHANGES/DOWN

None

COATINGS INDEX

The Coatings & Plastics index reflects the prices of 13 representative materials in this sector and the quantity of each produced in 1985.

Aug 1, 1985	308.4
July 25, 1985	308.4
Aug 3, 1985	308.4
Aug 2, 1985	308.4

Chemical Prices Start on Page 32

quired its Orange, Texas "Echoblack" plant in June.

These consolidation moves are expected to have a positive effect on pricing and the overall health of the US market in the long run.

PLASTICS ADDITIVES

ORGANOMETALLIC COUPLING AGENTS — Kenrich Petrochemicals Inc. is reducing prices for its "Ken-Renect," "Lica," "Capow" and "Caps" neosiloxane titanates, as well as those of its "Ken-Renect," KR, LZ and KZ neosiloxane, coordinate and cyclo-heterocyclic zirconate powders.

The price reductions vary with grade and according to order size, but some grades have been discounted by as much as 40 percent.

The firm's president, Salvatore J. Monte, explained that decreased production costs, brought on by new technology, are driving the decrease. As he explains, "Our price reductions are based on acceptance by the US Patent Office of several recent Kenrich patent filings on our neosiloxane titanate and zirconates, in addition to the assignment of TSCA numbers by the EPA and numerous successful applications in the technical and commercial marketplace." He expects demand for the agents to grow substantially over the next few years.

Prices for some representative grades follow: "Ken-Renect" LZ 01 will sell for \$11.00 per pound (truckload quantities) to \$31.29 per pound (for the smallest available quantity under 5 gallons); LZ-12 will sell for \$9.85 per pound (truckload) to \$27.8 per pound; "Ken-Renect Capow" KR TTS/H will sell for \$3.85 per pound (for 5,000 lb. orders and up) to \$13.88 per pound (for orders under 500 pounds); "Lica" 01 will sell for \$8.97 per pound to \$18.85 per pound and "Lica" 97 for \$6.34 to \$21.31 per pound.

Mr. Monte announced that Kenrich's React Reference Manual is currently being revised, and should be available in September. It will include improved and accurate recommendation tables, an updated patent survey, and new applications data. It will also introduce some new organometallics which have been developed for special applications.

PLASTICS MATERIALS

POLYPROPYLENE — DuPont Polypropylene Company has started to rebuild one polypropylene line at Delaware, Pa., which was partially destroyed by fire in 1985. Continued on Page 32

HEAVY & AG CHEMICALS

Sodium Sulfate Demand, Capacity Continue to Shrink

Sodium sulfate producers have little good news this year as sulfate use in detergent applications continues to be cut back and saltcake consumed by pulp and paper manufacturers faces stiff competition from competing bleaches.

Dry detergent makers are said to be presently engaged in another round of reformulation which may well result in lower sodium sulfate consumption. Sources admit it is generally difficult to determine detergent makers' plans ahead of time. One says that by November their requirements for 1987 should be firm.

Encroachment on the dry laundry detergent market by liquids, which do not use sulfate, is said to have leveled off, with liquids now commanding 25 to 30 percent of detergent sales.

One observer says, however, that major detergent makers are currently testing market liquid dishwasher detergents and guesses they may eventually take in the range of one-quarter of that market from sulfate-containing dry dish detergents.

Another source points out, though, that current sales levels for liquid detergents have been achieved by an advertising level that is most likely unsustainable. He feels liquid sales may ebb somewhat when advertising finally subsides.

Saltcake sales, likewise, continue to languish due to increasing use of emulsified sulfur and caustic soda as bleaching agents by papermakers.

The trend is currently exacerbated by extremely low caustic soda prices. Most sources feel saltcake use will increase when and if caustic prices firm, possibly to the Fall, but many concede as well that the pendulum will never swing entirely back.

Tempering decreased demand is decreased production of by product sodium sulfate. Last year Allied Chemical ceased by-product production when it closed its Baltimore, Md. chrome chemical plant.

FERTILIZER MARKET SLOW

Also last year, Climax chemical converted some of its Grantsville, Utah, sodium sulfate capacity to potassium sulfate. A source at Climax says the plant is presently producing sodium sulfate as well, since the fertilizer market for potassium sulfate had been slow this year.

Others add that production at both of Climax's plants lapsed this year since use of the company's primary product, hydrochloric acid, is off. Hydrochloric acid is used in oil drilling, a market that has suffered since the oil price collapse.

Also out West, Gulf Resources has not been producing for some time due to flooding at the Great Salt Lake. Sources report, however, that the company is still refining material that had accumulated in inventory.

In the East, sulfate product production at Foote Mineral Company's Kings Mountain, N.C. plant ceased temporarily July 1 when lithium carbonate production stopped there. Foote Mineral is currently up for sale (CMR, 7/28/86, pg. 40).

On the capacity increase front, J.M. Huber will be coming on stream this Fall with high purity sodium sulfate capacity in Havre de

Grace, Md., as a byproduct of silica pigment production.

Also, Courtaulds North America expanded its sulfate byproduct capacity earlier this year by about 40 percent to 35,000 or 40,000 tons, according to a spokesman. It also upgraded the output to high purity detergent grade sulfate as opposed to the pulp grade saltcake it made previously.

Making higher quality byproduct material seems to be a trend to the industry. Department of Commerce reports overall sodium sulfate production through April of 278,000 tons, down about 9 percent from the same period in 1985. However, high purity (over 99 percent sodium sulfate) production for the period increased 8 percent, to 153,000 tons.

Preliminary Bureau of Mines statistics show that natural sodium sulfate production for the first six months of 1986 hit 196,000

PRICES TRENDLINES

WEEK ENDING AUG 1, 1986

CHANGES/UP

Sodium Perfluorooctanoate, 80 per pound

CHANGES/DOWN

None

HEAVY & AG INDEX

The Heavy & Ag Chemicals index reflects the prices of 18 representative materials in this sector and the quantity of each produced in 1985.

Aug 1, 1986	113.69
July 25, 1986	113.69
July 3, 1986	113.69
Aug 2, 1986	113.69

Chemical Prices Start on Page 32

tons, as opposed to 197,000 tons for the same period in 1985.

To the surprise of some, natural sulfate imports from Mexico are off this year, totalling only 2,739 tons through May. Sources had expected the Mexicans to be more aggressive this year when they ceased to sell through a distributor and began marketing on their own.

Sources say sodium sulfate pricing has changed little since the beginning of the year. Saltcake still lists at \$85 per ton, f.o.b. plant, but in some cases actually sells at a \$15 or \$20 per ton discount.

Pricing for both natural and byproduct high purity sodium sulfate are said to be closer to list levels, especially on the West Coast. List levels range from \$98 to \$125 per ton, depending on location and grade. One source says sales closer to production points often go at list, but that shipping longer distances requires freight equalization with other production points and tends to eat closer to \$85 or \$90 per ton.

BASES & SALTS

SODIUM CHEMICALS — Public Service of Colorado (PSC) says it will be meeting with EPA later this month to propose installation of a dry scrubbing system for collection of SO₂ off-gas at two of its Cherokee generating station coal-fired power plants.

PSC, according to a spokesman, intends to install baghouse particulate collectors at two of its four Cherokee generators, replacing the present wet scrubbers. The other two generators have already been converted.

In doing so, however, SO₂ off-gas output increases by about 15 percent, an amount EPA considers unacceptable. Consequently, PSC has decided a dry chemical system would be best to collect this excess, and will be meeting with EPA to discuss a construction proposal.

If the dry system proposal is approved, PSC expects construction bid specifications

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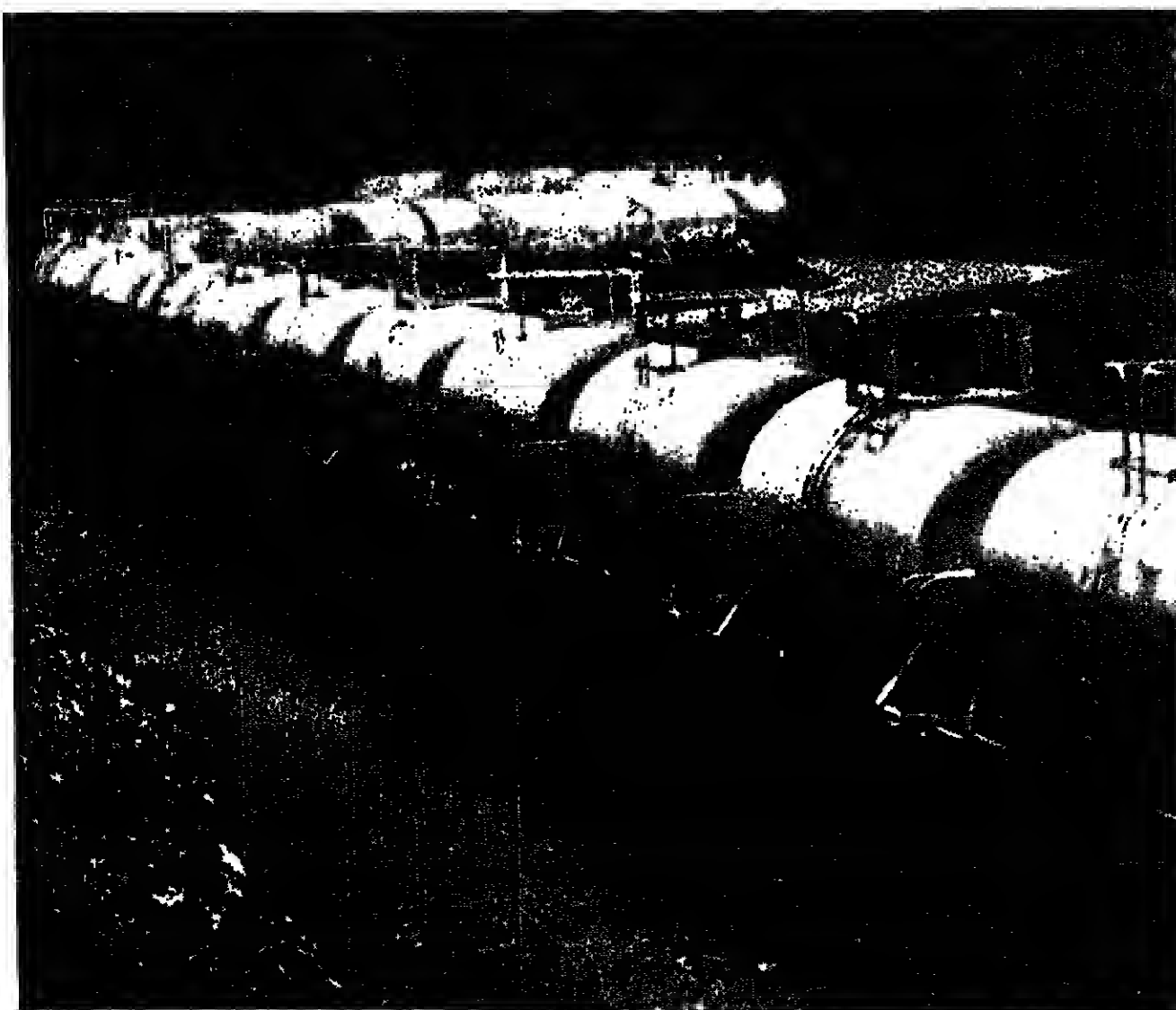


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HEAVY CHEMICALS

to be ready by the end of the year, and a subsequent construction period of two or two-and-a-half years. If not approved, PSC says it will not proceed with the baghouse system.

The PSC spokesman says the dry scrubber it intends to use has yet to be decided. He says natural sodium bicarbonate (nahcolite), and trona, as well as other materials, are being considered. PSC joins other public and private utilities in considering dry scrubbing systems for removal of SO₂ gas (ENR, 7/7/89, p. 5).

SODIUM FERROCYANIDE — The Chemicals Division of Degussa Corporation has announced a price increase for sodium ferrocyanide, effective immediately. Prices, in 25 kilo bags, are as follows: 60c. per pound for truckload quantities, 95c. per pound for less than truckload quantities, f.o.b. East

Brunswick, N.J., and Mobile, Ala.; 94c. per pound for truckload quantities, 69c. per pound for less than truckload quantities, f.o.b. Sparks, Nev., and Long Beach, Calif.

Packaging in 400 pound fiber drums commands a 4c.-per-pound premium for both quantity sizes. In addition, Degussa notes that 25 kilo bags are available in both technical grade material and F.C.C. grade material without a price differential. Only technical grade material is available in 400 pound packaging. Also, less than truckload orders will be on an f.o.b. basis only with a minimum order of 1,000 kilos (one pallet).

A spokesman says the new prices represent about a 13 percent increase over previous levels. He says the price had not changed in four years and cites diminishing margins, increased costs, and to an extent, the decrease in the value of the dollar as reasons for the hike. The material is manufactured by Degussa in West Germany.

At present, there are no US producers of sodium ferrocyanide. The last one, American Cyanamid, ceased production in 1982. At that point, Degussa took over production for Cyanamid, and by 1985 was servicing Cyanamid's customers directly.

Sodium ferrocyanide is added to salt as an anticaking agent and is used in mining applications. It also finds use in steel tinning and chemical synthesis.

COATINGS & PLASTICS

Continued from Page 26

1986. The reconstruction period is expected to take from 3 to 5 months. During this period, company spokesmen report that polypropylene production will continue uninterrupted in the firm's Bayport facility and on its other Odessa line.

POLYVINYL ACETATE — Producers report that prices for polyvinyl acetate have declined by a total of 2 cents per pound from January through July 1986.

One producer gives a selling price range of 27 to 29 cents per pound for paint grades, noting that discounts have brought prices down to 24 cents per pound for some customers. He describes prices as "way too low," and spread out too much. Other suppliers give much higher ranges of 32 to 34 cents per pound, adding that discounts of up to 20 percent are common.

Prices for paper grades are said to range from 28 to 30 cents per pound, with discounts of 10 to 12 percent; those for adhesives grades are priced from 20 to 32 cents per pound, with 10 to 20 percent discounts common.

Overcapacity is said to be a problem in the industry, but suppliers agree that most of it involves outdated production. Customers, aware of the idic capacity, are said to be using it to pressure suppliers into bringing down prices.

Producers estimate that domestic nameplate capacity is now about 2 billion pounds per year. Utilization rates are said to vary with producers. Although one is reportedly producing at 80 percent of capacity, sources state that most producers are operating at 70 to 75 percent of capacity. One company is said to be operating at 50 percent of capacity.

New capacity has been added within the last two years, but at present, it seems to balance the amount of capacity being shut down.

Reichhold Chemicals Inc. shut its West Coast plants in Tacoma and San Francisco last year. H.B. Fuller has also shut down some existing capacity, but is said to be building a new plant which would replace the previous capacity. Union Carbide brought a new plant on line in California last year. An additional plant is being considered, but plans have not yet been finalized.

Air Products is contemplating new expansions for the year, but expects the expansions to take the form of debottlenecking projects, rather than new plants.

Domestic paper demand is said to be up this year, primarily at the expense of other polymers.

Paint demand is also up, as PVAc is increasingly being used as a cheaper alternative to acrylics. One producer expects 40 million to 50 million pounds of demand to be added to the total of 500 million pounds by the end of 1986.

Sources agree that 1986 should be an all-time high for the paint end of the market.

Chemical Finance

Syntro in First Public Equity Offering

Syntro Corporation, San Diego, Calif., is offering 1.35 million shares of its common stock at \$9 per share. Of the total, some 1.25 million shares are being offered by the company while Merrill Lynch Capital Markets and L.F. Rothschild, Unterberg, Towbin Inc. are managing the underwriting syndicate.

Syntro intends to use the net proceeds from the offering, along with other existing funds, for plant, equipment and working capital for its animal health subsidiary, for company-sponsored research, and for other general corporate purposes. Syntro is developing vaccines for animal health and specialty chemicals for the food, industrial and energy recovery markets through molecular biology, including recombinant DNA, biochemistry and fermentation engineering.

Mobil Selling Packaging Unit for \$700 Million

Mobil Corporation has agreed to sell its paperboard packaging subsidiary, Contalner Corporation of America, to Jefferson Smurfit Company and a limited partnership for \$700 million. Jefferson Smurfit is an Irish paper company, while the limited partnership has been organized for investors in such transactions by Morgan Stanley & Co. and Citicorp Corporation. The buyers will assume \$490 million of Contalner Corporation's debt.

Mobil has had under consideration the sale of both Contalner Corporation and Montgomery Ward & Co. for several years. A charge of about \$150 million will be taken for the sale in the third quarter. Mobil said it will retain Contalner Corporation's 49 percent interest to T.R. Miller Company, of Brewton, Ala.

Canadian LPG Exports to US Rising

Exports of liquefied petroleum gases from Canada to the US will grow from 107,000 barrels per day last year by about 51 percent to 159,000 barrels in 1986, according to Resource Planning Consultants, Inc., Houston, Tex. At the same time, Venezuela is expected to increase its LPG production and export capability and to market aggressively in the US. Exports to the US from Latin America as a whole will rise from about 11,000 barrels per day in 1985 to about 40,000 barrels per day in 1995. Japan, in an effort to lessen dependence on the Mideast, is expected to increase its imports from Southeast Asia, according to RPCI.

Celanese Raises Dividend 10Cents per Share

Directors of Celanese Corporation have voted to increase the quarterly cash dividend on the common stock by 10 cents to \$1.30 per share, payable September 30 to shareholders of record on August 29. The increased dividend is the result of the corporation's positive assessment of its future, supported by a strong cash flow, a company spokesman said. The board also voted regular quarterly dividends of \$1.125 per share on the preferred stock, Series A; 75 cents per share on the convertible preference shares; and \$1.75 per share on the 7 percent second preferred. These dividends are payable October 1 to shareholders on August 29.

Morton Thiokol Buys a Polymer Corp. Operation

Morton Thiokol Corporation, Chicago, has acquired Iline Powder Coatings business of Polymer Corporation, Reading, Penn., a wholly owned subsidiary of Chesebrough-Pond's Incorporated. The newly acquired business is to be merged with Morton Chemical Division's existing powder coatings business, called Armstrong Products, in Warsaw, Ind. and will be headquartered in Reading. The new organization will be directed by Thomas Scattoloni, vice-president of powder coatings, and will operate within Morton Chemical.

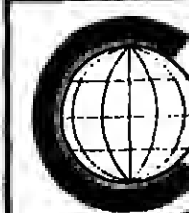
De Soto Buys Into UK Finishes Company

DeSoto, Inc., has acquired 80 percent of the equity capital of Dufay Titanine PLC, of Shildon, County Durham, England, for \$9 million. De Soto will combine its product development, manufacturing and marketing strengths with those of Titanine Aircraft Finishes, a division of Dufay, in a new operation to be known as DeSoto Titanine, which will supply a diverse line of aerospace coating products for commercial and military applications worldwide.

More Second-Quarter Results: Specialties

	2Q NET INCOME	2Q SALES	5 MOS. NET INC.	5 MOS. SALES
BORDEN				
1989	\$52 MM	\$1,237 MM	\$58.8 MM	\$2,373 MM
1985	\$48.3 MM	\$1,193 MM	\$50.9 MM	\$2,270 MM
FERRO				
1988	\$8.1 MM	\$195.1 MM	\$9.7 MM	\$359.7 MM
1985	\$3.3 MM	\$169.3 MM	\$6 MM	\$329.1 MM
LUBRIZOL				
1986	\$18.9 MM	\$290.9 MM	\$47 MM	\$537.4 MM
1985	\$18.9 MM	\$280.2 MM	\$36.3 MM	\$505.7 MM
MORTON THIOKOL				
1988	\$30 MM	\$480.5 MM	\$132.9 MM	\$1,848 MM*
1985	\$27.8 MM	\$450.7 MM	\$107.9 MM	\$1,832 MM*
REICHOLD				
1988	\$10.5 MM	\$212.7 MM	\$11.5 MM	\$422.4 MM
1985	\$31.1 MM	\$239.2 MM	\$9.7 MM	\$420.3 MM
VULCAN				
1989	\$31.7 MM	\$288.9 MM	\$39.8 MM	\$457.2 MM
1985	\$28.7 MM	\$291.3 MM	\$33.9 MM	\$480.7 MM

* Full fiscal year



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WEEK ENDING AUGUST 1, 1986

The chemical prices section contains spot quotations and/or list prices of suppliers of chemicals and related materials on a New York or other indicated basis. The listings are based on price information obtained from suppliers. Note that posted prices do not necessarily represent levels at which transactions actually may have occurred. They do not represent bid and asked prices, nor a range of prices over the week. Price ranges may represent quotations of different suppliers as well as differences in quantity, quality and location. All matters under this heading are fully covered by copyright.

An index of weekly chemical market reports is on the back cover.

[illegible]

THE TERMINOLOGY OF THE CHEMICAL MARKETPLACE

[illegible][illegible]

Barium oxide, grd., dms., c.i., divd., 100 lbs.	31.28	-	Borax, tech., gran., decahydrate, 60% a.s., c.i., wt., 100 lbs.	237.00	-
tole bins, same basis, 100 lbs.	30.00	-	tech., c.i., works, 100 lbs.	162.00	-
Barium peroxide, 700-b. dms., c.i., 1 lb.	.30	-	tech., pentahydrate, gran., 80% a.s., 60-lb. c.i., works, 100 lbs.	226.00	-
Barium stearate, bulk, 1 lb., c.o.b. deat.	1.05	-	Borax, NF (See Sodium borate)	260.00	-
Barium sulfate, tech. (see Barite and Blanc fixe)	-	-	Boric acid, tech., gran., 99.5% b.g., c.i., works, 100 lbs.	814.00	-
Barium sulfate, USP, 7-ary diagnosis grade, powd., 50-lb. bags, 10,000 filotons	3.50	-	Boron trifluoride, 2, 1-lb. cys., 100 lbs.	569.00	-
Barium sulfate (black ash), dms., c.i., works, 100 lbs.	460.00	-	Boron trifluoride, 60-lb. cys., 1 lb., c.o.b. 100 lbs.	3.80	-
Barite, English, 100-lb. dms., c.i., 1 lb.	.75	.85	Boron trifluoride, 60-lb. cys., 1 lb., c.o.b. 100 lbs.	4.03	-
Barite, French, 100-lb. dms., c.i., 1 lb.	.85	.90	Boron trifluoride, 60-lb. cys., 1 lb., c.o.b. 100 lbs.	3.47	-
Barite, Cal. Comares, 100-lb. dms., c.i., 1 lb.	90.00	-	Boron trifluoride, 60-lb. cys., 1 lb., c.o.b. 100 lbs.	2.86	-
Barite, Cal. Grand Vert, 100-lb. dms., c.i., 1 lb.	45.00	-	phenolate, 500-lb. dms., 1 lb., same basis	1.85	-
Barite, cal. refined, 100-lb. dms., c.i., 1 lb.	62.00	70.75	Bromine, dms., 1 lb., works, 100 lbs.	.87	-
Beauzinc, 87-88% As_2O_3 , Baltimore & Mobile, 100-lb. dms., c.i., 1 lb.	222.28	-	Bulk, 45,000-lb. min., works, 100 lbs.	.33	34 1/2
Bay of, NF-50-60% dms., 100 lbs.	15.50	15.00	purif., 1 lb., divd., 100 lbs.	.75	-
Bayberry wax, bgs., 100 lbs.	2.70	3.00	Bromine, divd., price for and bulk shipped W. of Rockland 10,000-lb. higher, Bulk 1 lb., price 1 lb. to 2500-per-lb. higher for 30,000-lb. min. and 40 to 500-per-lb. higher for 15,000-lb. min.	-	-
Beeeswax, red, bleached white bricks, 100-lb. dms., 100 lbs.	3.10	3.20	Bromochloroacetic acid, c.i., 1 lb.	1.12	-
white, 100-lb. dms., 100 lbs.	3.05	3.10	Butadiene, tanks, 10-lb., c.i., 1 lb.	.26	26 1/2
yellow, 100-lb. dms., 100 lbs.	3.00	3.10	1,4-Butadiene, tanks, 10-lb., c.i., 1 lb.	.80	-
Bentonite, dms., c.i., bags, 10-lb.	49.50	-	equid., 100 lbs.	.88	-
Benzaldehyde, NF dms., 1 lb.	1.25	.83	Butene-1, tanks, 10-lb. works, 100 lbs.	.68	28
tech., dms., c.i., 1 lb.	.73	-	N-Butyl acetate, sym., tanks, 10-lb. 62 1/2	-	-
Prices are 40¢ per lb. higher West of the Rockies.	-	-	N-Butyl acetate, tanks, 10-lb. 62 1/2	-	-
Benzene, Indust. or filtration, barges, 100 lbs.	75	-	N-Butyl alcohol, sym., solvent, tanks, 10-lb. 34	-	-
Baton Rouge, La., 100 lbs.	75	-	But-1 alcohol, sym., tanks, 10-lb. 38.85	-	-
Baytown, Tex., 100 lbs.	75	-	tert-Butyl alcohol, sym., tanks, 10-lb. 70	-	-
Beaumont, Tex., 100 lbs.	75	-	Butyl alcohol (see Dibutyl phthalate)	-	-
Beckburg, Ky., 100 lbs.	75	-	Butyl acetate, tanks, 10-lb. 53	-	-
Chicago district, 100 lbs.	75	-	Butyl glycidyl phthalate, tanks, 10-lb. 99.100	-	-
Chocolate Bayou, Tex., 100 lbs.	75	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.01	-	-
Clifton, Pa., 100 lbs.	75	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.85	-	-
Corpus Christi, Tex., 100 lbs.	75	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 35	-	-
Deer Park, Tex., 100 lbs.	75	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Houston district, 100 lbs.	75	72	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Wood River, Ill., 100 lbs.	75	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzene hexachloride, 98% gamma isomer (see Lindane)	-	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzene, orange, powd., bgs., 100 lbs.	4.80	8.70	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
10, 100-lb. dms., 100 lbs.	3.30	6.60	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzidine yellow, AAA, bgs., divd., 100 lbs.	6.80	8.05	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
AAAG, bgs., divd., 100 lbs.	7.35	7.40	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
AAAGT, bgs., divd., 100 lbs.	5.95	6.20	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzocaine, USP, dms., 1,000 kg. 100 lbs.	10.00	11.50	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzocyclohexanone, dms., 100 lbs.	12.50	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzole acid, tech., bgs., c.i., 1 lb.	.55	.58	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
USP grist, dms., 100 lbs. same basis	1.73	1.75	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzophenone, Sumner, c.s., 100 lbs.	1.80	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzophenone, Sumner, c.s., 100 lbs.	3.50	3.80	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
N.F., 1,000 kilos or more, 100 lbs.	7.45	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
1,000 kilos or more, 100 lbs.	4.35	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
2,2-Benzothiazyl disulfide (see Mercapto-benzothiazyl disulfide)	-	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzotoluene, flske, dms., 1,000 lbs. or more, 1,000 lbs. or more.	8.10	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
powd., dms., 1,000 lbs. or more, same basis.	8.20	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
pholo-grade, dms., 1,000 lbs. or more, same basis.	9.20	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzotrifluoride, ref'd., dms., 1 l., 100 lbs.	8.70	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
tech., 100 lbs.	.87	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzoyl chloride, 100 lbs.	.80	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzoyl chloride, 100 lbs.	.57	.59	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
tech., 100 lbs.	.74 1/2	.78	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzoyl peroxide, regular gran., 10,000-lb. lots or more, bgs., work, 100 lbs.	2.35	8.98	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
tech., 100 lbs.	1.71	1.96	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
pests, 50% and 55% formulations, 100 lbs.	1.20	2.80	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzyl acetate, dms., 100 lbs.	1.28	1.86	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzyl acetate, N.F. 1 l., dms., 100 lbs.	1.37	1.43	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
tech., same basis	1.40	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
photo grade, 1 l., dms., same basis	1.34	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
tech grade, 1 l., dms., same basis	1.32	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
tech., same basis	1.28	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzyl benzoate, dms., 100 lbs.	1.85	2.26	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzyl chloride, tech., non-ret. dms., c.i., 1 l., 100 lbs.	.59	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
tech., 100 lbs.	.80	-	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-
Benzyl chloride, 100 lbs.	8.60	9.95	N-Butyl glycidyl phthalate, tanks, 10-lb. 1.56	-	-

Cadmium chloride, purif., open, 100-lb. dms., c.i., 1 lb., works, 100 lbs.	3.73	-
Cadmium, CP, red, dark shade, bbs., 100 lbs.	-	-

CHEMICAL PRICES

WEEK ENDING AUGUST 1, 1986

Calcium carbide, std. generator size, bulk, c.i., f.o.b. works.....	402.00	
Ion Calcium carbonate, pulverized, 925-mesh, bgs, bulk, f.o.b. works.....	34.00	
Ion alumina, 54% solids, same basis.....	187.00	
Ion 72% solids, same basis.....	98.00	
Ion silica, gran., ind., bulk, works.....	87.00	
Calcium carbonate, coated, bgs., c.i., works.....	.0742	1350
Calcium carbonate, precip., bgs., c.i., works.....	370.00	430.00
Calcium carbonate precip. med. mesh, bgs., c.i., works.....	85.00	140.00
Ion precip. dense, bgs., c.i., surface treated, bgs., c.i., works.....	195.00	
Ion urethane, U.S.P. Bgs., c.i., works.....	180.00	170.00
Calcium chloride, conc. reg. grade 77-80%, flakes, bulk, c.i., works.....	163.00	
Ion 100-lb. bgs., c.i., same basis.....	196.00	
Ion anhyd., 94-97%, flakes or pellets, bulk, c.i., same basis.....	217.00	
Ion 80-lb. bgs., c.i., same basis.....	279.00	
Ion brining grade, 80-lb. bags.....	285.00	
Calcium chloride, liq., 100% percent basis, to, l.i., bags.....	90.75	
Ion 46% same basis.....	118.00	
Calcium chloride, U.S.P. gran., 225-lb. dms., l.i., frt. equald.....	.90	
Calcium chloride, purifi., 800-lb. dms., 10.00% or more, f.o.b. works.....	8.82	
Calcium cyanamide, indust., anhyd., dms., works.....	400.00	450.00
Ion Calcium gluconate, U.S.P. powd., l.i., 100% or more.....	1.89	
Calcium hydroxide, 100-lb. bags, 25-1,000-lb. lots, works.....	10.50	13.25
Calcium hypochlorite, 100-lb. bags, truckloads ship. E. of Rock-Island.....	92.40	
Calcium hypochlorite, 100-lb. bags, 500 kilos or more.....	13.75	14.50
Calcium lactate, FCC dms., f.o.b. works.....	.50	
Calcium lactate, 50-lb. dms., f.o.b. works.....	23.65	25.85
Calcium lactate, NF, powd., pentahydrate, dms., 24,000 lbs. or more, f.o.b. works.....	2.00	
Ion NF gran. solvent grade, 25-lb. bags, 500-1,000-lb. lots, same basis.....	2.10	
Calcium metaphosphate, 100-lb. bags, 500-1,000-lb. lots, same basis.....	2.80	
Calcium metaphosphate, 100-lb. bags, 500-1,000-lb. lots, same basis.....	85	
d-Calcium metaphosphate, U.S.P. 100-500 kilo lots.....	10.50	11.50
Calcium metaphosphate, feed grade, f.o.b. frt. elid., 250 kilos or more.....	8.00	8.50
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	2.75	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	228.00	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	62.50	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	71.75	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	49.80	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	50.00	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	54.98	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	62.50	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	.50	.86
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	.07	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	8.50	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	3.83	3.70
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	3.60	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	1.50	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	2.00	2.25
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	17.00	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	2.10	
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	.80	.85
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	.80	.85
Calcium metaphosphate, feed grade, 150 grams per lb., f.o.b. frt. elid., 500 lbs. or more.....	3.85	6.35
Cephalosporin monomer, flake, bgs., l.i., f.o.b. shipping point.....	.87	
Ion molten, tank, same basis.....	.88	
Cephalosporin, yellow, bgs., c.i., works.....	.35	
Cephalosporin, white, bgs., c.i., works.....	.150	
spec. grav., 1.070, dms.....	2.00	2.25
Cetane oil, industrial, dms.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
refid. pure, bgs.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
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Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
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Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....	2.10	
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	.80	.85
Cetane oil, white, bgs., c.i., works.....	3.85	6.35
Cetane oil, white, bgs., c.i., works.....	.87	
Cetane oil, white, bgs., c.i., works.....	.88	
Cetane oil, white, bgs., c.i., works.....	.35	
Cetane oil, white, bgs., c.i., works.....	.150	
Cetane oil, white, bgs., c.i., works.....	2.00	2.25
Cetane oil, white, bgs., c.i., works.....	17.00	
Cetane oil, white, bgs., c.i., works.....</		

CHEMICAL PRICES

WEEK ENDING AUGUST 1, 1986

[illegible]

Chlorinated paraffin. Zone 2 prices are 1¢ per lb. higher.

Chlorinated rubber, 5, 10, 20 cps., bps.			
t.f., dwd.	lb.	1.68	-
10 cps. bps. 1 lb.	lb.	1.68	-

34 CHEMICAL MARKETING I

Pbometer, powder, 5% rolenone, bases, 50-lb. bags, 11.1 works.....	lb	60	-
Cumene, buff, contract, 1.0-b.....	lb	141½	-
80-25 acid, indan, bags, c.i., 11.1 works.....	lb	82	85
Cyanuric acid, dms., c.i., 11.1 works.....	lb	1.18	1.37
Cyclamen aldehyde, 50% min. aldehyde content, dms.....	lb	4.85	-
98.5%, dms.....	lb	7.35	9.20
90-25% dms.....	lb	7.85	-
Cyclohexyl ester, tech., 55-gal. dms., 1.0-b, 11.1 works, inf. equald.....	lb	94125	96125
Cyclohexanol tech., tanks, 1.0-b.....	lb	52	60½
Cyclohexanone tech., tanks, 1.0-b, works.....	lb	55½	58½
Tanks, chvd.....	lb	565	-
Cyclohexylamine, tech., tanks, works.....	lb	85	-
2,4-Di acid, tech., 50-lb. bags, c.i., 11.1 works.....	lb	1.10	1.25
2,4-D butyl ester, tech., 55-gal. dms., 1.0-b, 11.1 works, inf. equald.....	lb	1.30	-
tanks, same basis.....	lb	1.25	-
2,4-D dim ethylene sulf., 1.0-b, 11.1 works, inf. add.....	lb	8.05	-
Deacyl alcohol, mixed 11.1 tanks, chvd.....	lb	32	-
peritane grade, dms.....	lb	75	-
Dechlorinated phosphate (tricalcium), feed grade, 18% P, 1.0-b, bulk, 1.0-b, works.....	ton	195.00	228.00
Denatured alcohol, ethyl, C018, C018 tanks, chvd, E.....	gal.	1.87	-
NOTE: Tankcar sales require written authorization by Alcohol and Tobacco Tax Division.			
Denatured alcohol, ethyl.....	gal.	1.81	-
SD28, tanks, chvd, E.....	gal.	1.78½	-
SD3A, tanks, chvd, E.....	gal.	1.66	-
SD32A, tanks, chvd, E.....	gal.	1.89	-
SD28, tanks, chvd, E.....	gal.	1.82	-
SD3A, tanks, chvd, E.....	gal.	1.78½	-
SD32A, tanks, chvd, E.....	gal.	1.89½	-
Denatured alcohol, ethyl, brucine formula SD40, tanks, chvd.....	gal.	1.83	-
ethyl, optional formula, SD40, tanks, chvd.....	gal.	1.82½	-
For ethyl alcohol on above formulas, prices are 12c per gal. higher.			
West Coast chvd. prices are the same as Eastern prices except in Idaho, Oregon and Washington where a differential on tankcars is maintained.			
Desoxyphenyl hydrochloride (See Methamphetamine hydrochloride)			
Detergent alkylate, straight chain docylbenzene, tanks, barges, 1.0-b.....	lb	45	-
Dextrin, corn, dietary grade, paper, bags, c.i., works.....	100 lbs.	28.04	-
whirls, paper bags, c.i., works.....	100 lbs.	27.43	-
Dextrose, anhyd., coml, bags, c.i., dms, chvd, New York.....	100 lbs.	41.10	-
USP special, 100-lb. bags, c.i., dms, chvd, New York.....	100 lbs.	40.50	-
Dextrose, hydrated coml, bags, c.i., chvd, New York.....	100 lbs.	24.25	-
Western zone.....	100 lbs.	25.60	-
Dichloroacetic alcohol, acetone free, tanks, chvd.....	lb	52	-
Diacetyl, flavor grade, dms.....	lb	9.25	15.00
Diammonium phosphate, fertl. grade, min. 18% N, 48% P, bulk, c.i., 1.0-b, Fla. works.....	ton	140.00	145.00
Diammonium phosphate, feed grade, 18% N, 20% P, bulk, c.i., 1.0-b, Fla. works.....	ton	240.00	-
tanks, same basis.....	ton	250.00	-
Diammonium phosphate, tech., bags, c.i., 1.1.1. works, inf. equald.....	100 lbs.	62.50	-
food grade, bags, c.i., 1.1, same basis.....	100 lbs.	57.75	-
2,4-Chl-tri-aminophenol, min. 95.5% dms., c.i., 1.1.1. works, inf. equald.....	lb	1.04	-
tanks, work.....	lb	.07	-
Dienlyl yellow, OT, yellow 141, dms, inf. add.....	lb	8.20	-
o-Dianiline dithyochloride, 100%, 18W 24, dms, c.i., 1.1, chvd.....	lb	4.25	-
2,6-Di-tert-Butyl-p-Cresol (see Butylated hydroxytoluene)			
Dibutyl maleate, tanks, 1.0-b.....	lb	.70	.75
Dibutyl maleate tanks, 1.0-b, works.....	lb	.81	-
Dibutyl sebacate, tanks, works.....	lb	.58	-
Dibutyl sebacate tanks, works.....	lb	1.58	1.95
Dibutylamine, dms, c.i., chvd.....	lb	1.12	-
tanks, same basis.....	lb	1.06	-
Dioctyl phthalate tanks, inf. add, E. lb. 2-6-Dichloroaniline, Hleka, dms.....	lb	.35	.37
works.....	lb	2.00	-
fused, dms, works.....	lb	1.80	-
3,4-Dichloroaniline, tech. 88% solid, dms, c.i., 1.1, 1.0-b, works.....	lb	1.48	1.57
o-Chloroaniline, tech., 80% dms, c.i., 1.1, works.....	lb	.62	-
tanks, same basis.....	lb	.45	-
98% red, dms, c.i., same basis.....	lb	.54	-
tanks, same basis.....	lb	.47	-
p-Chloroaniline, graded, 300-lb. tanks, 1.1, 1.0-b, inf. equald.....	lb	.51	.81
tanks, 1q, same basis.....	lb	.43	.47
2,6-Dichloro-4-nitroaniline, dms., 10,000 lbs. or more, works.....	lb	3.30	-
Dichlorophenylacetic acid (see 2,4-D)			
Dicyclohexylamine, dms., c.i., 1.1, f.o.b.....	lb	1.35	-
tanks, same basis.....	lb	1.28	-
Dicyclohexyl phthalate, bags, c.i., 1.1, chvd.....	lb	1.25	-
Dicyclohexylene, high purity, 97-98%, tanks, works.....	lb	.38	-
Dichloroaniline, tech, inf. add.....	lb	.44	.47
Dichloroaniline lauryl sulfate, tanks, inf. add.....	lb	.41	-
DDVP (see Dimethyl dithiophenyl phosphite)			

Diphenyl oxide, tech. grade, tanks, lb.	1.11
Diphenylamine, tech. flake, bgs., lb.	1.45
works, frt. equivd., lb.	1.20
molten, tanks, works, lb.	1.01
o-cyflated, flake, bgs., lb.	1.00
works, lb.	7.86
Diphenylguanidine, bgs., lb.	2.52
frt. equivd., lb.	2.60
Diphenylhydantoin-sodium USP, dms., lb.	.91
Diphenylmethane 4,4'-disocyanate, polymeric, bulk, c.i., min. frt. and over, frt. prepaid or not, lb.	29.15
Dipropylene glycol, tanks, frt. aid., lb.	.48
Dipropylene glycol monomethyl ether, dms., c.i., divd., lb.	.54
tanks, same basis, lb.	.48
Di-o-tolylguanidine, powd., dms., lb.	2.92
frt. aid., lb.	3.11
Di-o-tolylthiourea, tech. solid, dms., lb.	3.11
frt. aid., lb.	.80
Diethylidene phthalate, tanks, divd., lb.	.59
Diethylidene phthalate, tanks, divd., lb.	.59
Dihydrobenzene, 100% basis, tanks, lb.	2.75
diol, 100% basis, lb.	3.00
Hydrocarbyl ayn., tanks, l.o.b., lb.	7.78
Dodecanol succinic anhydride, dms., c.i., lb., divd., lb.	.88
Dodecylbenzene (see Dodecyl Alkyls), lb.	
Dodecylphenol, tanks, min. frt. aid., lb.	.48
E	
Eyak, coaltar, cered and used in food drugs and cosmetics, 100 lb. and over, frt. prepaid or not, lb.	21.20
Blue, FDA C, No. 1, lb.	21.20
Green, FDA C, No. 3, lb.	48.50
Red, FDA C, No. 3, lb.	24.00
Yellow, FDA C, No. 5, lb.	7.46
No. 8, lb.	8.45
Eyak, coaltar, cered and used in food drugs and cosmetics, 100-lb. lots, divd., lb.	38.80
Green, B, lb.	42.80
Red, FDA C, No. 4, lb.	18.85
No. 17, lb.	38.80
No. 18, lb.	38.25
No. 22, lb.	12.45
No. 28, lb.	59.95
No. 33, lb.	48.95
Yellow, FDA C, No. 7, lb.	21.00
No. 10, lb.	20.55
No. 11, lb.	36.25
Eyak, coaltar, for general use in cloth and paper dyeing by Color Index Name), L.o.b. works, lb.	5.75
A Bk 1 Blue/black ex. conc., lb.	5.75
Dyes, A B 9 Blue 2G, lb.	14.85
AB 45 Alizarin Blue SP 150%, lb.	19.15
A B 90 Alizarin Br. Cy G, lb.	14.13
AB 113 Navy Br., lb.	8.55
Ac R 10 Des 120 333%, lb.	22.12
AD 7 11, lb.	37.72
A B 8 RO Ex. Conc., lb.	4.00
Ac R 10 Wood CR, lb.	4.00
Ac R 74 Meta/Red D RNA, lb.	8.15
Ac R 20, lb.	8.13
AB 14 Azro Rubine 133%, lb.	8.65
AB 35 Scarlet AR Conc., lb.	3.46
AB 88 Fast Red A Conc., lb.	4.50
AB 151 Sh. Red 3B Conc., lb.	4.50
AV 17 SBNS Conc., lb.	9.73
AV 49 SBNS Conc., lb.	12.22
AY 17 Fast Light B 2G, lb.	8.55
AY 23 Terrazine Ex Conc., lb.	1.80
B B 9 Zinc Fro., lb.	6.15
B B 4 Bismarck Brown R Ex. Conc. lb.	4.52
B D 1 Jade Crystals, lb.	8.58
B G 4 Methylene Green Crystals, lb.	8.80
B V 1 Methyl Violet Crystals, lb.	8.80
B V 10 Rhodamine B Ex., lb.	10.95
B Y 2 Bond Yel 5FA 150%, lb.	10.10
DB 1 Sky Blue 8G Conc., lb.	4.62
Ex. Conc. 300%, lb.	9.25
DB 8 Azurine D Conc., lb.	9.45
DB 22 Fast Black CR, lb.	2.85
Fast Black CR 100%, lb.	2.85
DB 230 Rezin Fast Brown BRNB 300%, lb.	7.23
DB 25 Rezin Fast Green OL, lb.	9.18
DB 248 Ex. Conc., lb.	9.18
D R 31 Brilliant-Red 128 Conc., lb.	8.18
D R 80 Fast Red 8BLN, lb.	0.15
D R 11 Paper Red 88LP, lb.	8.85
D R 251 Fast Scarlet AY, lb.	8.25
DB 102 Fast Orange WSP Liq., lb.	11.21
WS. Conc. 150%, lb.	2.42
D Y 4 Brilliant Paper Yell 30X 15%, lb.	1.78
Brilliant Paper Yell 3GX Liq., lb.	1.78
D Y 11 Stillbene Yellow GA. Ex. Conc., lb.	3.03
D Y 22 Fast Yellow RD. Conc. 200%, lb.	5.75
D Y 27 Rezin Fast Yellow LSG, lb.	14.44
Die R 1 Scarlet BA, lb.	.42
Die R 81 Paper Red 200%, lb.	21.00
Die Y 3 Yellow O, lb.	2.68
Die Y 54 Yellow 3G, lb.	6.84
Die O 3 Orange DRA, lb.	8.9
Die O 37 Orange OB, lb.	3.77
Die V 1 ARN Paste, lb.	7.84
Die V 28 Bordeaux SW 200%, lb.	17.91
Die 17 Blue GFLD, lb.	10.80
Die 51 102 Blue SFDA 300%, lb.	22.85
50% Paste, lb.	4.18
Die J 4 Jet Orient Dyeable Paste, lb.	5.25
VBK-25 Olive TA Paste, lb.	5.18

	Ferric chlorides, sewage grade, 100 percent basis, f.o.b. works, tank cars.....	170
1.31%	Ferrochrome, 98% min., f.o.b. works, tank cars.....	170
1.33%	Ferrous sulfate, cryst., dms., U.S. I., f.o.b. works, tank cars.....	170
	Ferrous sulfate, tech., gran., 80-lb. drms., f.o.b. works.....	170
4.25	Ferrous oxalates (see Iron Oxides).....	170
	Ferrophosphoric acid, 10% solution powder, dms., 10,000 lb. drums.....	170
	Feric pyrophosphate, soluble, purif., pearls, 50-lb. dms.....	170
.48	Ferrous resinate, precip., 8.75% Fe, dms., tons frt. incl.....	170
.41%	Ferrous sulfate, partly hydrated, 100-lb. bgs., c.t., works.....	141
.42%	Ferrous sulfate, partly hydrated, 100-lb. bulk, works.....	141
	Ferrous ammonium citrate, NF, brown, green, gran., 100-lb. dms., 2,000 lb. min., f.o.b. shipping pt.....	170
	Zn. per pound surcharge for shipments W. of.....	170
	Ferrous ammonium oxalate, fine gran., 250-lb. dms., U.S. I., f.o.b. works.....	170
1.28	Ferrous hydroxylamine diametriacetic acid, industrial grade, sodium salt, 60%, 4.5% Fe, etc., U.S. I., f.o.b. works.....	170
1.50	Ferrous hydroxylamine, 80% agricultural grade, sodium salt solution, 5% Fe, U.S. I., f.o.b. works.....	170
1.50	Ferrous carbonate trihydrate, dms., U.S. I., works, frt. equalized.....	170
4.22	Ferrous gluconate, NF, U.S. I., works.....	170
	Ferrous naphthalene, liq., 6%, Fe, dms., dmd.....	170
	Ferrous sulfates, moist, bulk, U.S. I., f.o.b. works.....	170
4.68	Ferrous heptahydrate, gran., bulk, U.S. I., f.o.b. works.....	170
	Ferrous monohydrate, gran., bulk, U.S. I., f.o.b. works.....	170
.28%	USP powder, 400-lb. dms.....	170
.28%	cryst., 250-lb. dms.....	170
	Pir oil, Canada dms.....	170
	Silver dust, U.S. I., works.....	170
	kettle-boiler, tanks.....	170
	light, cold-pressed, dms., c.t., f.o.b. tanks.....	170
4.75	Fishmeal, from methanols, 80% protein grad., bulk, f.o.b. Atlantic port.....	170
	f.o.b. Gulf port.....	170
	Imp., Chilean, 80% protein min., bulk, c.t., or worse, f.o.b. Atlantic and Gulf ports.....	170
	Fluoboric acid, dms., U.S. I., works, frt. equalized.....	170
	Fluorocarbon No. 11 bulk, tank cars, dms.....	170
	No. 12, bulk, same basis.....	170
	No. 13, bulk, same basis.....	170
	No. 14, bulk, same basis.....	170
	Fluoroalkyl acid (see Hydrofluoroalkyl acid).....	170
	Formaldehyde, 37% methanol free (uninhibited), dms., gal.....	170
	44-48% (1% methanol) tanks, dms.....	170
	37% (inhibited 7% methanol), dms.....	170
	37% (inhibited 11-15% methanol) tanks, dms.....	170
	Formamide, tanks, f.o.b. works.....	170
	dms., same basis.....	170
	Formic acid 80% tanks, f.o.b. works.....	170
	85% dms., c.t., works.....	170
	Fructose, crystalline, 18,000 kilos or more, dms., U.S. I., works.....	170
	Fumic acid, food grade, bgs., U.S. I., frt. equalized.....	170
	tech. grade, bgs., U.S. I., f.o.b. frt. equalized.....	170
	Furfural, tanks, U.S. Cedar Rapids, Iowa, frt. equalized.....	170
	Furfuryl alcohol, tanks, U.S. Memphis, Tenn. and Omaha, Neb., f.o.b. works.....	170

[illegible]

CAL	
1, 1986	
.85	-
.78	-
.77	-
.79	-
.87	-
.83	-
.80	-
.85	-
.90	-
.95	-
1.00	-
1.05	-
1.10	-
1.15	-
1.20	-
1.25	-
1.30	-
1.35	-
1.40	-
8.95	-
.89 1/2	-
.87 1/2	-
.98 1/2	-
.91	-
14.50	-
.44 1/2	-
1.25	1.40
3.45	-
1.40	2.00
16	40
20	60
40	7 1/2
60	90
.80	1.20
.55	.75
.85	.75
(report)	
2.70	-
2.50	-
.50	.75
.50	.05
8.00	8.25
.55	-
4.55	-
1.07	-
1.18	-
.85	-
.43 1/2	-
1.42	-
.55	-
.59	-
.80	-
.63	-
7.01	1.16
1.12	-
.50	-
.32	-
.78 1/2	-
.50	-
39.00	-
10.25	11.30
8.70	10.70
.25	.25
1.54	-
1.81	-
7.50	-
.85	-
.50	-
.34 1/2	-
2.00 1/2	-

WEEK ENDING AUGUST

85 (*Alivirama* bga. ci) lb.

115 polygrams, bgs., c.I., f.o.b. lb.
 116 polygrams, bgs., c.I., f.o.b. lb.
 135 polygrams, bgs., c.I., f.o.b. lb.
 144 polygrams, bgs., c.I., f.o.b. lb.
 182 polygrams, bgs., c.I., f.o.b. lb.
 220 polygrams, bgs., c.I., f.o.b. lb.
 108 polygrams, bgs., c.I., f.o.b. lb.
 135 polygrams, bgs., c.I., f.o.b. lb.
 154 polygrams, bgs., c.I., f.o.b. lb.
 192 polygrams, bgs., c.I., f.o.b. lb.
 235 polygrams, bgs., c.I., f.o.b. lb.
 251 polygrams, bgs., c.I., f.o.b. lb.
 283 polygrams, bgs., c.I., f.o.b. lb.
 315 polygrams, bgs., c.I., f.o.b. lb.
 347 polygrams, bgs., c.I., f.o.b. lb.
 375 polygrams, bgs., c.I., f.o.b. lb.
 411 polygrams, bgs., c.I., f.o.b. lb.
 444 polygrams, bgs., c.I., f.o.b. lb.
 477 polygrams, bgs., c.I., f.o.b. lb.
 Glutamic acid, 99%+ dms., 100-lb. ctn.
 Note:
 Glycerine, nat. red, USP, CP 99%+ lb.
 tanks, dms., lb.
 USP, CP, nat. 84%, tanks, dms., lb.
 Syn. 95%, tanks, dms., lb.
 Syn. 98.5%, tanks, dms., lb.
 Glycine (see Aminoacetic acid).
 Glyceryl glucosides, 100-lb. lib. dms., kilo
 Glycolic, (see Hydroxyacetic acid).
 Glyoxal 40% aq. soln., bulk, tanks, lb.
 dms., lb.
 Grepelinol oil, Fla. dms., lb.
 Cell, dms., lb.
 Graphite, amorph. powd., bgs. dms. lb.
 cryst. 88-90% powd., bgs. dms. lb.
 88-90% powd., bgs. dms. lb.
 95-98% powd., lbs., dms., lb.
 Graphite, amorph., cryst. 97%+ and up lb.
 powd., lbs., dms., lb.
 whse., lb.
 Olefins, Nalco, No. 1, 90-95%, bgs. dms. lb.
 95%+ whse., lb.
 No. 2, 90-95%+ bgs. dms., lb.
 whse., lb.
 Grease (See Oils, Fats & Waxes market).
 Dross oil (See Lard oil).
 Quailock, 100 lb., 500-lb. dms., 24,000-lb. lb.
 confr., f.o.b. Wellington lb.
 NOTE: Purified grades are 10c. higher.
 Gums, wood, 100 lb., 500 lb., 24,000 lb. lb.
 Over quail, bgs., vls., c.I., f.o.b. ship's pl. lb.
 Indust., bgs., high viscosity, c.I., same basis. lb.
 90-95% lb.

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Pichrochlorophyll, dry clearing grade		
dist., tanks, dwd.	lb.	.28%
Indust. grade, consumers, tanks,		
dwd.	lb.	.31
Perfume dms., c.l., alk.	c.	2.65
Permanent red 2B, (fr abd), calcium		
salts, dms., (70 ald)	lb.	6.26
Perfume salts, same basis	lb.	6.26
Penta boric acid, 99% min.	lb.	3.90
Phenyl acetate, Al. Paragay	lb.	6.76 6.25
Petroleum, USP, snow white, dms.,		
c.l., rel'y.	lb.	.370
tanks, rel'y.	lb.	.370
USP, soft white, dms., c.l., rel'y.	lb.	.375
tanks, rel'y.	lb.	.375
USP, try white, dms., c.l., rel'y.	lb.	.370
Petroleum, USP, Lillywhite, tanks	lb.	
rel'y.	lb.	.305
USP, cream, dms., c.l., rel'y.	lb.	.365
tanks, rel'y.	lb.	.30
USP, soft yellow, dms., c.l., rel'y.	lb.	.360
tanks, rel'y.	lb.	.285
USP, amber, dms., c.l., rel'y.	lb.	.345
tanks, rel'y.	lb.	.280
Petroleum pitch (see Asphalt, petroleum)		
Petrol sulfonated, 20-25% alk.		
cont., HMMV, bulk, works	lb.	.48%
MWW, same basis	lb.	.48
USP, same basis	lb.	.48
Price \$5.00 per 20 lbs. lower on		
spending molecular wts.		
Phosphoric acid, powd., 200-lb. dms.,		
1,000-lb. lots, dwd.	lb.	2.20
1000-lbs. lots, dwd.	lb.	2.22
Phenacetin, dms., c.l., f.b.	lb.	2.00
Phenacetinsulfide, USP, dms., 800-kilo		
lots, l.o.b. works	lb.	19.80
Phenacetinsulfide, AF, 500-kilo		
lots, l.o.b. work	lb.	27.00
Phenol, sym. tanks, frt. equid.	lb.	.25 .29
p-Phenol, anal. grade, 60% sol'n.		
dms., c.l., lab works	lb.	.84
tanks, same basis	lb.	.59
Phenothiazine, indust. grade, 10-lb.		
bags, o.i., l.o.b. works	lb.	2.33
purif. grade, same basis	lb.	2.69
Phenyl acetate, dms., c.l., rel'y.		
works, c.l., rel'y.	lb.	1.04
Phenylic acid, pure cryst., 25-lb.		
crs.	lb.	4.80
di-Phenylalanine, dms., 20-lb.		
crs.	lb.	84.00
1-Phenyl-3-carboethoxy pyrazoles-5,		
dms., 200-lb. lots, dwd. E, U.	lb.	3.45
p-Phenylenedinitrate, cast, dms., c.l.		
f.b., l.o.b. work	lb.	2.07
o-Phenylenediamine, flaked, dms.,		
l.o.b. works	lb.	3.25
p-Phenylenediamine, flaked, dms.,		
l.o.b. work	lb.	4.00
Phenyleneiphenyl hydrochloride, USP		
100-lb. lots or more	kilg.	175.00 195.00
Phenylethyl alcohol, dms.	lb.	3.95
Phenylethyl acetate, dms., c.l., rel'y.	lb.	3.35 3.40
p-Phenethylamine, dms., 30,000 kils.		
or more, frt. alkd.	lb.	1.50
Phenylethyl(phenyl) acetate, 25-lb.		
crs. dms.	lb.	0.80 6.80
Phenylglycidyl ether, dms., c.l., rel'y.	lb.	3.60
Phenyhydrazine, 99% min., dms., c.l.		
1-Phenyl-3-methyl-5-pyrazole-one,		
dms., 200-lb. lots dwd. E	lb.	1.80
o-Phenylphenol, dms., c.l., rel'y.	lb.	1.36 2.00
p-Phenylphenol, bgs., tl., 40,000 lbs.		
or more, works	lb.	1.83
Phenylpropionamide hydrochloride		
100-lb. lots, dms.	lb.	24.00 28.00
Phenylylacetyl, purif. cryst., dms.		
E	lb.	2.75
tech. cryst., E	lb.	2.28
tech. E	lb.	2.35
Phloxine tonar (red 90), dms., frt.		
alkd.	lb.	1.98 2.00
Phosgene, 1-ton net. cyls., 5-lb. pail,		
guaranteed	lb.	.65
Phosphate rock, F.A., land pacific, run		
of mine washed, 68-69% p.p.		
bulk c.i. mines	ton	23.16
Tampa, same basis	ton	28.00
Phosphoric acid, com.		
grades, 50-70 % tanks	lb.	
80-85% tanks	lb.	28.00
85-90% tanks	lb.	31.00
85% A.F. tanks	lb.	
equid.	lb.	33.50
Food grade price \$2.00 above tech. grade.		
Phosphoric acid, agricultural grade,		
50-55 % s.p.a.	lb.	
works	lb.	3.10
super, min. 70% s.p.a., same		
basis	lb.	3.45
Phosphoric acid, 50-55% s.p.a.,		
c.i. works, frt. equid.	lb.	.90
tanks, works, l.o.b. works	lb.	1.01
Phosphorus oxychloride, tanks, frt.		
equid.	lb.	.40
Phosphorus pentaoxide, 100-lb.		
dms., o.i. works	lb.	50.00
sci.bas, sellers	lb.	45.00
Phosphorus pentoxide, dms., t.l.,		
works	lb.	.82
Phosphorus sesquisulfide, dms., cva.		
o.i. works	lb.	.38
Phosphorus trichloride, dms., o.i.,		
works	lb.	.36
tanks, works	lb.	.36
Phthalic anhydride, flake, c.l., t.l., dms.		
frt. equid.	lb.	.80
mottier, tanks, same basis	lb.	.27
Price 1-lb/cr. higher on the West Coast		
Phthalimide, flake, works	lb.	.85
Phthaloylamine blue toner, red shade,		
blue, frt. equid.	lb.	6.00
green shade, same basis	lb.	6.20
resinated, blue, same basis	lb.	6.40

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Rice bran oil, refined dms. 1 lb.	1.25	-
Ricinoleic acid (see Castor oil acid, split)		
Rocheite salt (see Potassium-sodium tartrate)		
Roofing pitch (see Coal-tar pitch, roofing)		
Rose oil, nat. NF, Bulgarian, c.1.		
bols.	3850.00	3990.00
Turkish, otto, bols.	4100.	2200.00
Rosemary oil, NF, Spanish, dms.	8.00	14.50
Turkish, dms.	9.70	10.00
Rotomone resin, 30-45%, 100-lb. works.	21	23
unit-lb.		
S		
Seacharlin NF, gran. soluble, dms.	2.50	2.75
1,000-lb. lots, 1st. add.		
Seacharlin NF, powd., coarse, add.		
less than 20,000-lb. lots, 1st. add.	3.75	-
Sellowor oil, non-break tanks, N.Y.	.47	.50
Sellolite dms., N.Y., chvd.	.93	.97
Sege leaves, Dalmatian, 1/2 bags, lb.	1.75	-
Albanian, bgs.	1.30	-
forest.	.80	-
Sege oil, Clary, French, bols.	60.00	-
Dalmatian, cns.	8.50	10.00
Spanish, cns.	12.50	-
Seicyaldehyde, tanks, L.O.B.	1.30	-
Seicyaldehyde, gran. powd., dms.	1.07	1.10
2,000-lb. lots, 1st. add.		
Sellolyto add, tech., dms., c.1., 1/2.	1.23	1.41
cryst.	1.33	1.63
USP, airt., dms., 1,000 lbs. or more.	1.68	-
USP, powd., dms., 1,000 lbs. or more.		
Selol (see Phenylacetylene)		
Sell, expanded, common, 80-lb. bgs., c.1., 1/2, North, works.	4.02	-
buck, same basis.	83.00	91.20
Sell, rock, medium, coarse, same basis.	4.00	-
bgs.	2.70	-
buck, same basis.	19.00	25.00
Sellitica, dms., buck, works, 100%	85.00	90.00
N.S.O., same basis W.	80.00	90.00
same basis W.	80.00	90.00
Sellitwood oil, E. Indian.	145.00	-
Indonesian	102.00	-
Seracoline, tech., same, works, 1/2.	50	-
equand.		
Scherffler's salt, passie, dms., 100%	2.59	-
bols, works.		
Scopolamine hydrobromide, USP	30.00	40.50
100-oz. lots bols.		
Sebacic acid, CP, bgs., c.1., works.	2.14	-
puril, bgs., c.1., works.	2.13	-
Seadite mixture, dms.	30.75	-
Selenium, powd., 98.98% Se, dms., chvd.	13.00	-
com., 99.5% Se, same basis.	10.00	15.00
Senna leaves, Alton, same basis, 1/2.	75	.80
half, bols.	.70	.71
Thinavally No. 1, bols.	.80	1.10
powd., bols, dms.	1.00	1.20
Seasone oil, USP, dms.		
Seasone seed, Central American, hulled, bgs.	.50	.01
Serine pigment, burnt, paper bgs., c.1., works.	19.75	29.75
rev. paper bgs, c.1., works.	19.15	29.15
Silica, amorph, dry-d, dms., c.1., works.	31.00	32.50
98% 200 mesh.	32.00	33.50
99% 200 mesh.	34.00	35.50
93% 97%, 325 mesh.	37.00	-
98.5% 325 mesh.	41.00	54.50
89.5% 325 mesh.	71.50	-
Silica, dry-d, dms., 100 mesh, 38.8% 400 mesh, micronized.	12.80	75.50
95% under 10 microns, micronized.	79.50	92.00
98% under 10 microns, micronized.	104.00	105.00
Silica, hard-quartz, 99.5% SiO ₂ , 325 mesh, bgs., c.1., works.	37.00	-
140 mesh, bgs., c.1., works.	34.75	-
Silicon tetrachloride, tech, dms., c.1., works.	.50	-
tanks, works.	.35	-
Silver bullion, ingots.	5.22	-
Silver cyanide, 90% Ag 50-oz. lot.	4.185	-
Silver nitrate, ACS, 58.2 Troy oz. AG/100 avo. wt. AgNO ₃	3.1270	-
Soapbar, crushed, bols.	1.00	-
powd., bols.	1.35	1.65
Soda ash, dense, 55%, 100-lb., paper bgs., c.1., works.	120.00	-
buck, c.1., same basis.	150.00	-
light 55%, 100-lb., paper bgs., c.1., same basis.	83.00	-
buck, c.1., same basis.	123.00	-
Soda, caustic, c.1., 50%.		
Gulf Coast works, f.o.b. 1st. equal, 79% Na ₂ O.	175.00	185.00
75% same basis.	205.00	225.00
like 79%, 400-lb. dms.	500.00	570.00
solid, 79%, 700-lb. dms., c.1., works.	920.00	570.00
gran., 70%, 400-lb. dms., c.1., works.	620.00	-
beads, 79%, 400-lb. dms., c.1., works.	27.50	28.50
Prices for light ray-ray, \$10 ton higher. Prices in West 70c. higher for solid, and \$20-30 c. ton higher for gran. and beads.		
Soda, salt, conc., bgs., c.1., works.	3.35	3.85
Sodium acetate, anhyd, bgs., c.1., f.o.b. works.	.54	-
Sodium acetate, USP, 80% gran. 100-lb. dms., c.1., works.	.07	-
Sodium		
aliphate, NF, white powd., 55%, 300-lb. dms.	6.00	8.75
Sodium p-aminosalicylate, dms., 100-lb. lots or more, f.o.b. works.	4.73	-
Sodium arsenite, bgs., c.1., dms.	1.49	1.50
Sodium ascorbate, USP, dms., 100 kilos.	0.30	10.50
Sodium benzoate, tech., bgs., c.1., 1/2, 1st. add.	70.75	-
Sodium benzoate, USP, 50-lb. bgs., c.1., 1/2, 1st. add.	.83 1/2	-
tanks, same basis.	.88 1/2	-
100-lb. dms., c.1., same basis.	.89	-
ton-lots, same basis.	.92	-

Sodium bicarbonate, USP, powd., reg. grade, bgs, c.t., 100 lbs.	frt. equivd.....	100 lbs.	17.65
coarse, same basis.....	100 lbs.	18.05	-
fine, same basis.....	100 lbs.	17.20	-
gran., same basis.....	100 lbs.	17.35	-
fine, same basis.....	100 lbs.	17.60	-
Sodium chlorate, gran., bgs, c.t., 1 lb.	frt. equivd.....	100 lbs.	.57
Sodium albid., 100-lb. dms., c.t., 1 lb.	frt. equivd.....	100 lbs.	.79
100-lb. bgs, c.t., same basis.....	100 lbs.	.76	-
Sodium bisulfite, bulk, c.t., works.....	ton	178.00	-
dms., c.t., 100 lbs.	100 lbs.	13.00	-
Sodium bisulfite, anhyd., 100-lb. dms., c.t., works, East.....	100 lbs.	28.50	-
works, West.....	100 lbs.	32.00	-
Sodium borate, soln., 38%, bulk, 100% basic, works.....	200 lbs.	20.80	-
soln., 100%, bulk, works, West 100% basic, photographo grade, 43% soln., works.....	100 lbs.	21.90	-
Sodium borate NF, gran., bgs, c.t., 1 lb.	frt. equivd.....	100 lbs.	.51
powd., same basis.....	100 lbs.	.52	-
Sodium borohydrate, powd., dms., 100-lb. 50-60 work.....	100 lbs.	18.99	21.80
Sodium borohydrate, stabilized, soln., 12% NaBH ₄ , 100% basic, 3000 gal. tankwagons, works.....	100 lbs.	17.45	-
Sodium bromide, 85%, gran., 400-lb. dms., L.o.b. shipping point.....	100 lbs.	1.04	-
Sodium carbonate, decahydrate, bgs, c.t., 1 lb., works.....	ton	264.00	-
Sodium carbonate, cryst. monohydrate (see Soda ash), works.....	ton	302.00	-
Sodium carboxymethylcellulose (see CMC).			
Sodium chlorate, bulk, t.c., 1 lb., 100-lb. works.....	420.00	440.00	-
Sodium chlorate, crysal., 450-lb. dms., c.t., 1 lb., works.....	100 lbs.	.27	-
Sodium chloride, tech. (see Salt).....	100 lbs.	.29	-
Sodium chloride, USP, gran., c.t., 1 lb.	frt. equivd.....	100 lbs.	.17
Sodium chromate, anhyd., dms., c.t., 1 lb., works.....	100 lbs.	.64	-
Sodium chromate, tetrahydrate, c.t., 1 lb., works.....	100 lbs.	.87	-
Sodium diarsite, gran., anhyd., 200-lb. dms., c.t., N.Y., works.....	100 lbs.	1.85	-
Sodium citrate, USP, gran., dms., 100-lb. bgs, 1 lb., f.o.b. shipping point.....	100 lbs.	.74½	-
Sodium cyclamate, 200-lb. dms., c.t., 1 lb., works.....	100 lbs.	.85	-
Sodium cyanide, briquettes or gran., 99% min., 200-lb dms. min., f.o.b. works.....	100 lbs.	.99	-
Sodium disulfate, anhyd., dms., c.t., 1 lb., works.....	100 lbs.	.68	-
Sodium disulfate, FCC, 50-lb. bgs, 1 lb. divd. E of Rockes.....	100 lbs.	.01	67
Sodium fluoride, 100-lb. dms., c.t., works.....	100 lbs.	.52	-
Sodium erythorbate, powd., gran., 1 lb. or mixed 1 lb., L.o.b. shipping point.....	100 lbs.	2.80	2.85
Prices V. of Domestic Production per pound higher.			
Sodium ferrocyanide, bgs, c.t., 1 lb., works.....	100 lbs.	.90	-
Sodium fluosilicate, 100-lb. dms., c.t., 1 lb., works, frt. equivd.....	100 lbs.	1.77	-
Sodium fluoride, white, 97%, 400-lb. dms., c.t., works, frt. equivd.....	100 lbs.	9.345	-
100 lbs. c.t., same basis.....	100 lbs.	.80	-
USP grade, 200-lb. dms., c.t., 1 lb., f.o.b. shipping point.....	100 lbs.	4.89	-
Sodium formate, bgs, c.t., works.....	100 lbs.	.20	-
Sodium gluconate, 100-lb. bgs, 100 lbs. f.o.b. shipping point.....	100 lbs.	.60	-
Sodium hydride, oil dispersion, 50% NaH, 197-lb. dms., 10 dms., works.....	100 lbs.	1.98	-
Sodium hydroxide, 50% solution (see caustic soda)			
Sodium hydroxide, 50% solution (see caustic soda)			
Sodium hypochlorite, 5% grade, 300-lb. dms., c.t., 1 lb., works, frt. equivd.....	100 lbs.	.54	-
Sodium hypochlorite, 5% grade, 300-lb. dms., c.t., 1 lb., works, frt. equivd.....	100 lbs.	.56	.58
Sodium hypochlorite, tech. (see Soda ash)			
Sodium hyposulfite, 24% grade, 300-lb. dms., c.t., 1 lb., works, frt. equivd.....	100 lbs.	1.425	1.00
110 lb. dms., c.t., 1 lb., works, frt. equivd.....	100 lbs.	1.47	1.82
Sodium hyposulfite (see Sodium thiosulfate).			
Sodium iodide, USP, cryal., 300 to 600-lb. dms., c.t., 1 lb., works, frt. equivd.....	100 lbs.	14.72	-
Sodium lauryl sulfate, 30% tanks, L.o.b. works.....	20	32	-
Sodium lignin sulfonate, bgs, c.t., 1 lb., works.....	100 lbs.	25.50	-
Sodium metabisulfite (see Sodium bisulfite).			
Sodium metaborate, octahydrate, gran., bgs, c.t., works.....	100 lbs.	.39	-
tetrahydrate, gran., bgs, c.t., 1 lb., works.....	100 lbs.	.49	-
Sodium, metallic, 12-lb. bricks, dms., c.t., works.....	100 lbs.	.93	-
fused, 24,000-lb. lots or more, works, world.....	100 lbs.	.87	.70
Sodium metaphosphate, tech. bgs, c.t., f.o.b. shipping pt., frt. equivd.....	100 lbs.	51.90	-
food grade, bgs, c.t., f.o.b. frt. equivd.....	100 lbs.	86.25	-
Sodium metasilicate, anhyd., bgs, c.t., 1 lb., works.....	100 lbs.	27.25	-
bulk, c.t., works.....	100 lbs.	26.30	-
pentahydrate, bgs, c.t., 1 lb., f.o.b. shipping point.....	100 lbs.	18.65	-
c.t., 1 lb., works.....	100 lbs.	17.20	-
Sodium molybdate, anhyd., dms., L.o.b. works, 100 lbs and over.....	100 lbs.	4.87	-
cryst., dms., 1 lb., same basis.....	100 lbs.	4.12	-
Sodium naphthalene, 100-lb. dms., c.t., 1 lb., works.....	100 lbs.	2.00	-
Sodium Nitrate, USP, bgs, c.t., f.o.b. frt. equivd.....	100 lbs.	34.50	-
Sodium nitrite, 98% pure, 100-lb. dms., c.t., works.....	100 lbs.	284.00	292.00
imp., coal., 100-lb. bgs, c.t., All, or work.....	100 lbs.	260.00	-
bulk, c.t., same basis.....	100 lbs.	205.00	214.00
imp., agricultural, bulk, c.t., same basis.....	100 lbs.	182.00	-
Sodium nitrite, USP, dms., c.t., works, frt. equivd.....	100 lbs.	140.00	-
frt. equivd.....	100 lbs.	37.25	-

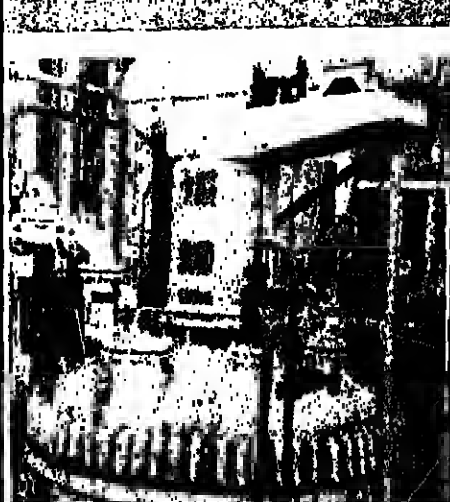
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40 CHEMICAL MARKETING REPORTER August 4, 1988

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KETTLES-REACTORS, SS

30,000 gal. 304SS fermentor, 14' x 24', 26 psi/vac., coils, 200 HP agit. (4)
15,000 gal. 316SS reactor, 12' x 15' 100 psi int., 200 psi jkt., agit. (3)
10,000 gal. 316SS reactor, 13' x 14' 100 psi int., 150 psi jkt., agit. (4)
5,000 gal. 304SS, atm. int., 75 psi jkt., agit. (4)
4,100 gal. 304SS kettle, 16 psi jkt., 6 HP agit. (2)
3,500 gal. 316SS kettle, 20 psi jkt., 7 1/2 HP agit. (2)
2,500 gal. 304SS reactor, 75 psi/FV int., 150 psi jkt. (1)
1,500 gal. 304SS kettle, 150 psi jkt., 5 HP agit. (3)
1,150 gal. 304SS reactor, 16 psi int., 25 psi jkt., 5 HP agit. (1)
800 gal. 304SS reactor, 75 psi/FV int., 150 psi jkt., agit. (1)
600 gal. 304SS reactor, 300 psi int., 75 psi jkt., coils (3)
600 gal. 304SS reactor, 150 psi int., 150 psi jkt., 5 HP agit. (1)
300 gal. 316SS reactor, 75 psi/FV int., 80 psi jkt. (1)
(50) 316SS and 304SS reactors and kettles from 5 gal. to 400 gal., coils for list.

REACTORS--GLASS

2 gal. Pfaudler, 750 psi/FV, 700 psi jkt.
20 gal. Pfaudler, 35 psi, 100 psi jkt., agit. (2)
30 gal. Pfaudler, jkt.
50 gal. Pfaudler, 25 psi, 100 psi jkt.
50 gal. Pfaudler, 100 psi/vac., 60 psi jkt., agit., 1976
100 gal. Pfaudler, 25 psi, 60 psi jkt., agit.
120 gal. Pfaudler, 25 psi/vac., 90 psi jkt., agit.
200 psi, 100 psi jkt., agit. 1976
300 gal. Pfaudler, 25 psi/vac., 90 psi jkt.
500 gal. Pfaudler, 100 psi/vac., 90 psi jkt., vert. drive agit.
500 gal. Pfaudler, 25 psi, 95 psi jkt., 6 TW agit.
1,000 gal. Pfaudler, 100 psi, 90 psi jkt.
1,000 gal. Pfaudler, 75 psi/vac., 90 psi jkt., 10 HP agit.
1,000 gal. Odebrecht, 100 psi/vac., 90 psi jkt., 1981
1,500 gal. Pfaudler, 100 psi/vac., 90 psi jkt., 25 HP agit.
2,000 gal. Pfaudler, 100 psi/vac., 90 psi jkt., 18 HP agit.
2,500 gal. Pfaudler, 150 psi, 90 psi jkt., agit.
3,750 gal. Pfaudler, 160 psi jkt., agit.
4,000 gal. Pfaudler, 100 psi, 90 psi jkt., agit.
6,000 gal. Pfaudler, 90 psi/vac., 90 psi jkt.

AUTOCLAVES

Autoclave, Ure, 46" x 45" high, 316SS, 3200 psi, multi-wall, jkt.
Autoclave, 7' x 7' Biega, 100 psi
Autoclave, 72" x 36" high, 316SS, 2200 psi
Autoclave, 30" x 46" Schneider melon converter, forged steel, 8165 psi, UNISEO
Sterilizer, 2' x 3' American, SS
Sterilizer, 20" x 20" x 30", SS Ameco
Sterilizer, 2' x 6' Ameco, SS

BINS, HOPPERS

12,000 cu. ft. steel, 27' x 40', built, bolted
5,800 cu. ft. steel, 12' x 48', bolted
1,050 cu. ft. 304SS, 8' x 16', plus cone (2)
450 cu. ft. 304SS, 8' x 5', cone
375 cu. ft. 304SS, 6' x 5', cone
275 cu. ft. 304SS, 6' x 14'
95 cu. ft. 304SS, 5' x 4', cone

DUST COLLECTORS

100 sq. ft. Draco, aluminum
185 sq. ft. Draco, aluminum
225 sq. ft. Fuller, 2400 CFM
203 sq. ft. Mikro Pulsaire # 645A20, SS
785 sq. ft. Carter-Day, 7200 CFM
1130 sq. ft. Mikro Pulsaire, #17148, SS
1460 sq. ft. Carter-Day, SS 12000 CFM
2688 sq. ft. Parsons, 7650 CFM
6000 sq. ft. Standard, 76500 CFM, UNISEO (4)

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EQUIPMENT CO. INC.
WORLD HEADQUARTERS
Box "O", Hainesport, New Jersey 08036
Phone: (609) 267-1600 • Cable "PERRY" • Telex 81 5397

DRYERS

Blaw-Knox 6' x 40' SS vac. dryer, 800 cu. ft.
Blaw-Knox 36" x 20' vac. dryer, 316L SS, 72 cu. ft.
Mathis 24" x 48" Baker, chrome plated
Sandvik 48" x 24" SS belt floater, UNISEO
Sargent 30" x 48" SS conveyor dryer
Stokes 6" x 11" drum floater
Blaw-Knox 32" x 30" dbl. drum
Buller 42" x 120" dbl. drum, 180 psi
Aeromatic #87-5 fluid bed dryer, 6/10 KD
Olati #W9300 fluid bed, 304 SS, 1974 (2)
Witte 36" x 10' fluid bed, SS, sanit-cooler
Stokes 36 sq. ft. Lyophilizer freeze-dryer
Struthers-Wells 72" dia. pan dryer, jkt.
Remberg 36" x 20" rotary dryer, 316 SS
Remberg 5' x 28' 304SS rot. hot air dryer, w/cyclone, etc. (2)
GATX 304SS hot air dryer, 6' x 36", 7' x 36", 6' x 36" (3)
96" x 50' Louisville SS rotary dryer
10' x 100' GATX rot. steam tube dryer, 140 psi (4)
Wysamont #VTU-24 Turbo-dryer dryer, 304SS
P-K 6 cu. ft. vac. dryer, 304SS
Abbe 30 cu. ft. 304SS vac. dryer
Devine 110 cu. ft. 304SS vac. dryer
Pfautler 185 cu. ft. glass-steel vac. dryers (2)
Abbe 325 cu. ft. 316SS vac. dryer
Devine 370 cu. ft. 316SS vac. dryer
Devine 664 cu. ft. vac. shell dryer
Niro 50" SS spray dryer
Turbulam 48" x 7' spray dryer
Bowen 72" spray dryer, SS
Gowen 96" spray dryer, SS

FILTERS-VACUUM

36" x 1' Ametek, 316SS, 9 sq. ft.
4' x 3' Bird-Young, SS, 48 sq. ft.
4' x 16' Elanco, 316SS, 64 sq. ft., horiz.
6' x 3' Ametek, SS, 5 sq. ft.
6' x 4' Elanco, "Elmco" polypropylene, UNISEO
6' x 14' 9" Pasavant 200 ball press, 250 sq. ft., 1982 (4)
6' x 8' Elanco, SS, 200 sq. ft., precoat
6' x 10' Don-Olivier, 250 sq. ft., 316SS, precoat
6' x 12' Elanco, 316SS, precoat, 300 sq. ft., (3)
6' x 14' Don-Olivier, 316SS, precoat, 350 sq. ft. (2)
11' x 10' Elanco, 316SS, precoat, 314 sq. ft.
11' x 16' Elanco, SS contacts
12' x 12' Impco, 304 SS, 450 sq. ft.
12' x 14' Kamline, 304SS, 525 sq. ft., flatbelt diach. (2)
45' Elanco filling pan, vac. filter, 316 SS
12 sq. ft. Ametek/Nagora #12, SS
54 sq. ft. Funda, SS, jkt.
54 sq. ft. Arline "Dynamic" filter/washer, SS (2)
230 sq. ft. Durco, 316 SS
600 sq. ft. U.S. Autolite, 316SS, 600 sq. ft.
1000 sq. ft. U.S. Autolite #1000, 304SS
13" Horman filter press, 21 plates, SS, 500 psi
30" Horman filter press, 11 cu. ft.
32" Shriver filter press, 548 sq. ft., hydraulic
42" Shriver filter press, 777 sq. ft., hydraulic
48" Shriver ALP recessed filter press, SS, 276 sq. ft.
48" Clow, polypropylene recessed, 1500 sq. ft.

MIXERS, BLENDERS

3.5 cu. ft. Henschel #FMI50, 17/20 KW
11.5 cu. ft. Henschel #115SS, 32/48 HP
13.7 cu. ft. Lodge #W600/K1200, mix./cool comb.
20 cu. ft. P-K twin shell SS
35 cu. ft. Day Heule, #N83360, SS
60 cu. ft. Genco, T.W. SH, Smit SS
60 cu. ft. Pullman, dbl. cone SS
70 cu. ft. Day Heule, #N8700, 10 HP
75 cu. ft. Day Heule, SS, jkt.
75 cu. ft. Robinson SS ribbon blender, jkt. (2)
98 cu. ft. Day Heule, SS, 1981
110 cu. ft. J.H. Day, dbl. ribbon, 316SS
189 cu. ft. Pfaudler, dbl. cone, glass steel jkt., vacuum
200 cu. ft. Young, ribbon, SS
316 cu. ft. Sprout-Waldron ribbon blender, SS, jkt.

JUST PURCHASED

3' x 10' Stokes 588 Rot. Vac. Dryer, 304SS, 35 cu. ft.
132 cu. ft. Devine Rot. Vac. dbl. cone dryer 304SS
644 ft. Chemtron #10-30 wiped film wrap, 316SS
Unused Mikro 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th, 101st, 102nd, 103rd, 104th, 105th, 106th, 107th, 108th, 109th, 110th, 111th, 112th, 113th, 114th, 115th, 116th, 117th, 118th, 119th, 120th, 121st, 122nd, 123rd, 124th, 125th, 126th, 127th, 128th, 129th, 130th, 131st, 132nd, 133rd, 134th, 135th, 136th, 137th, 138th, 139th, 140th, 141st, 142nd, 143rd, 144th, 145th, 146th, 147th, 148th, 149th, 150th, 151st, 152nd, 153rd, 154th, 155th, 156th, 157th, 158th, 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CHEMICAL PROFILE

STYRENE

AUGUST 4, 1986

SUPPLY PRODUCER	CAPACITY*
American Hoechst, Bayport, Tex.	1,000
Amoco, Texas City, Tex.	750
Arco, Channelview, Tex.	1,200
Arco, Kobyte, Pa.	220
Borg-Warner (Cos-Mar), Carville, La.	750
Chevron, St. James, La.	625
Cosden (Cos-Mar), Carville, La.	750
Dow, Freeport, Tex.	1,300
El Paso Products, Odessa, Tex.	320
Sterling Chemicals, Texas City, Tex.	1,500
Total	8,415

*Millions of pounds annually. American Hoechst agreed, last March, to sell its styrene facility to Huntsman Chemical in five years. Meanwhile, Hoechst will operate the plant exclusively for Huntsman, which has taken over Hoechst's styrene marketing operation along with polystyrene facilities in Peru, Ill. and Chasapeake, Va., totaling 580 million pounds of polymer production capacity per year. Borg-Warner and Cosden participate in a joint venture at Carville, La. Each company owns half the output of the 1.5-billion-pound-per-year operation. A 200-million-pound-per-year expansion at the Carville plant came on stream last March. El Paso Products expanded its annual capacity by 30 million pounds over the last three years. Sterling Chemicals is buying Monsanto's Texas City, Tex. petrochemicals facility. The purchase includes the 1.5-billion-pound-per-year styrene operation and a 1.5 billion-pound-per-year ethylbenzene unit. Profile last published 9/5/83; this revision, 8/4/86.

DEMAND
1985: 7.6 billion pounds; 1986: 7.8 billion pounds; 1990: 8.65 billion pounds (Represents total apparent domestic consumption, including production of about 1 billion pounds per year for export sales and imports of 200 million pounds per year).

GROWTH
Historical (1978-1985): 6.9 percent per year; future: 3 percent per year through 1990.

PRICE
Historical (1954-1986): High, 42c. per pound, tanks, f.o.b. works; low, 6.6c. per pound, tanks, divd. Current: 18c. per pound tanks, f.o.b. works.

USES
Polystyrene, 55 percent; acrylonitrile-butadiene-styrene (ABS), 9 percent; styrene-butadiene rubber (SBR), 7 percent; styrene-butadiene latex, 6 percent; unsaturated polyester resins, 6 percent; miscellaneous uses, including other copolymers and styrene-acrylonitrile (SAN), 4 percent; exports, 13 percent.

STRENGTH
Styrene monomer is light and its major single end use, polystyrene, is growing by as much as 6 percent per year. US producers have completed a three-to-four-year period of modernizing their facilities. This has improved capacity along with efficiency. The US should continue as a major supplier to the world market through the end of the decade.

Continued on Page 10

BOOKSHELF

Chemical Thesaurus

This two-volume set* accesses all the trademarks by which a multitude of chemical products are sold. It provides over 50,000 national and international trademark entries and enables the user to locate all the chemically equivalent products that are available. The information is also available as a software package for automated searching on DOS-based personal computers.

Volume 1 lists generic chemical substances alphabetically. Each entry includes the trademark equivalents that are available for that generic substance along with its manufacturer. Volume 2 is a compilation volume, listing all trademark products alphabetically by their generic chemical description.

The digital form of the compilation of generic and trademark cross indices has been combined into a single data base package (Spruice Scientific Systems). The search software allows data base entries to be located by chemical name, trademarks or company which manufactures the commercial product.

*THE THESAURUS OF CHEMICAL PRODUCTS. Two volumes. Cloth, 359 pages (Vol. 1), 6 X 9 inches. Chemical Publishing Company, 912 Cherry Lane, Vestal, N.Y. 13850. \$145 per volume, \$290 per set. Software package, \$560.

Marketing High Technology

As high-technology products become increasingly standardized — practically identical from the customer's point of view — it is marketing that spells life or death for new device and entire firms. This volume*, whose author is described as "the driving force behind the microprocessor explosion," purports to tell how to fight the marketing battle in the intensely competitive world of high-tech companies — and win.

The book dwells on the basic, such as how to go head-on against the competition; how to plan products, not devices; how to engineer promotions, market internationally, motivate sales people and rally distributors. Above all, the critical importance of servicing and supporting customers is emphasized. Total customer satisfaction, it's made clear, must be every high-tech marketer's ultimate goal.

*MARKETING HIGH TECHNOLOGY. By William H. Davidow. Cloth, 194 pages. 6 X 9 1/2 inches. Free Press News Division of Macmillan, Inc., 866 Third Avenue, New York, N.Y. 10022. \$23.95.

Robotics in Textiles

While this book* deals with subject matter that is definitely in a formative stage, there is little doubt that from the standpoints of national self-interests, economic paybacks and technological feasibility the dawn of the age of automation and robotics in textiles and apparel has already begun. How well each firm or nation succeeds in making the transition from highly labor intensive to highly capital intensive organization depends in large part on how well the managers of existing firms understand the forces at work and plan for a future which includes a massive exchange in the technologies and human systems.

Part of the change taking place in the textile and apparel industries is evolving from historical bases. Moving pieces of fabric from one place to another by computer-controlled automatic overhead tramways and replacing human operators on sewing machines with stiffen pockets onto shirt fronts are examples of such continuous evolution.

But another part of the change focuses on discontinuous, revolutionary technology where things like laser beams cut fabric instead of the scissors, knives and other metal blades that have done so for thousands of years, and things like ultrasonic waves provide seams in sport fabrics instead of the needle and thread systems which have done so since the dawn of time.

Many of the authors of the papers contained in the volume participated in a recent seminar of the North Carolina State University School of Textiles, and some of the articles in the book are the result of that seminar.

*AUTOMATION AND ROBOTICS IN THE TEXTILE AND APPAREL INDUSTRIES. Edited by Gordon A. Berkstresser III and David R. Buchanan. Cloth, 328 pages. 6 X 9 1/2 inches. Noy Publications, Mill Road of Grand Avenue, Pork Ridge, N.J. 07068. \$48.

JOBS & PEOPLE



David B. Collins, who has been named vice-president of firm at Hercules Incorporated, responsible for the company's worldwide polystyrene business. He was most recently general manager of Hercules do Brasil.

Mobay Corp. Appoints Two Vice-Presidents

Mobay Corporation has appointed R. Jay Finch vice-president and general manager of the Plastics & Rubber Division and Herman R. Werner vice-president and general manager of the Dyes, Pigments & Organics Division.

The two divisions have been enlarged as part of a restructuring at Mobay that has consolidated the company's eight divisions into seven.

Mr. Werner had been with Bayer AG, Mobay's parent company in Leverkusen, West Germany, for the past 33 years.



R. Jay Finch

herbicides in the global agricultural products department of Dow Chemical Company... ROBERT L. FRYE has been appointed technical service supervisor in the Specialty Adhesives Division of National Starch & Chemical Corporation.

WILLIAM D. McIVER has been appointed product manager in Schenectady Chemicals Inc.'s Resin Division... JUDY NODJAK has been named controller of Degussa Corporation's Teterboro facility... RAYMOND W. BARKALOW has been appointed technical manager of glass coatings in the Industrial Chemicals Division of M&T Chemicals Inc.

THOMAS J. BROWNIE has been named business operations manager for a variety of products.



Thomas W. Field Jr.

chief executive officer of McKesson Corporation... ROBERT C. WARNER has been appointed sales manager for the solvents & Chemical Division of Neville Chemical Company... ROBERT HOBAN has been Southwest regional account manager for the petro-



Hugh Gallagher, vice-president and general manager of Air Products & Chemicals Inc.'s Performance Chemicals Division, who has been appointed vice-chairman of the steering committee of the Polyurethane Division of Society of the Plastics Industry.

chemical, chemical and petroleum catalyst and clays division of Harshaw/Filtrol Partnership.

GLENN H. PETSCHKE has been named group leader of urethane resins in the Coatings & Adhesives Division of AZS Corporation and TIMOTHY S. HYDE has been appointed Northeast regional manager for the company's coatings division... FRANK G. MEYER has been elected vice-president and controller of Terra International Inc.

ANTHONY M. GRZYMKOWSKI has been named product manager in the new products/amino acids department of Degussa Corporation's Chemicals Division and ANDREW J. BURKE has been named personnel manager of Degussa... KATHLEEN M. HIR-



Kathleen M. Hirsch

Bee Chemical Appoints Marketing, Auto V-P's

Bee Chemical Company has named Joe Klein vice-president of marketing and John D. Harigan vice-president of automotive operations.

Mr. Klein was previously with General Electric, as regional sales manager for construction equipment sales. Prior to that, he was a sales representative with Exxon Chemical and Union Carbide.

Mr. Harigan was previously general manager for Hughes Adhesives Group.



Joe Klein

SHIMAN has been appointed manager of "Utili-Fax," Union Tank Car Company's railcar listing and subleasing service.

JOAN ORENTLICHER has been appointed meeting planner for Bio-Lab Inc. and ANNE PINKERTON has been named director of



Joan Orentlicher

customer service... CHARLES D. BRANDENBURG has been elected vice-president of Buckman Laboratories' Formulator Chemicals Division and DR. TITUS M. JOHNSON has been elected vice-president of the Agriculture & Wood Treatment Division.

MEETINGS CALENDAR

AUGUST 4, 1986

THIS MONTH

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, Summer national meeting, Sheraton Boston Hotel, Boston, Mass., August 24-27.
AMERICAN CHEMICAL SOCIETY, chemical marketing and economics division, seminar on R&D management, Sciticon-Princeton executive conference center and hotel, Princeton, N.J., August 15-15.

LATER ON

AMERICAN CHEMICAL SOCIETY, 182nd annual meeting, Anaheim Convention Center, Anaheim, Calif., September 7-12.
AMERICAN MICROCHEMICAL SOCIETY, eastern analytical symposium, jointly with American Chemical Society and Society for Applied Spectroscopy, New York Hilton Hotel, New York, October 20-24.
AMERICAN PETROLEUM INSTITUTE, annual meeting, San Francisco, Calif., November 8-11.
ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS, 100th International meeting and exhibition, The Regency Hotel, Scottsdale, Ariz., September 15-18.
ASSOCIATION OF THE NON-WOVEN FABRICS INDUSTRIES, eighth international conference and exhibition, Georgia World Congress Center, Atlanta, Ga., October 21-23.

CANADIAN CHEMICAL PRODUCERS ASSOCIATION, international symposium on transportation emergency response, Vancouver, B.C., Canada, September 14-18.

CHEMICAL GROUP, NATIONAL ASSOCIATION OF PURCHASING MANAGEMENT, Fall Conference, Marriott Pavilion Hotel, St. Louis, Mo., October 21-23.

CHEMICAL MARKETING RESEARCH ASSOCIATION, world chemical congress, jointly with the chemical marketing and economics division of the American Chemical Society, "The Chemical Industry: Where in the World is it Going?", Newport Resort Hotel, Newport Beach, Calif., September 7-10.

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION, seminar on aerosol technology, Ramada Hotel O'Hare, Rosemont, Ill., October 27-28; 73rd annual meeting, Marriott's Harbor Beach Resort, Fort Lauderdale, Fla., December 7-11.

CHLORINE INSTITUTE, Fall meeting, The Homestead, Hot Springs, Va., September 21-25.

COMMERCIAL DEVELOPMENT ASSOCIATION, impact of mergers and acquisitions on the future of technology-driven corporations, Hershey Hotel, Hershey, Pa., October 28-29.

CONFERENCE BOARD, business outlook conference, Waldorf-Astoria Hotel, New York, September 24-25.

COUNCIL FOR CHEMICAL RESEARCH, annual meeting, Northwestern University, Evanston, Ill., September 28-30.

COUNCIL FOR RESPONSIBLE NUTRITION, annual meeting, "Health Messages: New Directions and New Opportunities," J.W. Marriott Hotel, Washington, D.C., September 7-10.

EUROPEAN PETROCHEMICAL ASSOCIATION, annual meeting, Monte Carlo, Monaco, September 28-October 1; distribution meeting, October 18-October 22.

FERTILIZER INSTITUTE, world fertilizer conference, "Global Trading Patterns," Hyatt Regency Hotel, San Francisco, Calif., September 14-18.

FERTILIZER ROUND TABLE, Sheraton Inner Harbor Hotel, Baltimore, Md., November 17-18.

FIRE RETARDANT CHEMICALS ASSOCIATION, Fall conference on proper processing and selection of flame retardants, Kiawah Island, S.C., October 19-22.

FRAGRANCE MATERIALS ASSOCIATION OF THE UNITED STATES, 10th International congress of essential oils, fragrances and flavors, Omni Shoreham Hotel, headquarters hotel, Washington, D.C., November 18-20.

K-86, 10th International trade fair for plastics and rubber, Messe Frankfurt, West Germany, November 5-13.

NATIONAL ASSOCIATION OF CHEMICAL TORS, 15th annual meeting, Ritz Hotel, Naples, Fla., December 2-5.

NATIONAL PAINT & COATINGS ASSOCIATION, annual meeting, Atlanta Hilton Hotel, Atlanta, Ga., November 3-5.

PULP CHEMICALS ASSOCIATION, naval stores meeting, Waldorf-Astoria Hotel, New York, September 15-17.

SOCIETY OF THE PLASTICS INDUSTRY, 50th anniversary conference — South, jointly with the Society of the Plastics Engineers, Georgia World Congress Center, Atlanta, Ga., October 8-10.

SYNTHETIC ORGANIC CHEMICAL MANUFACTURERS ASSOCIATION, OSHA compliance seminar, Intercontinental Hotel, New York, September 28-29.

TEXTILE ASSOCIATION OF AMERICA, 1986 polymer conference and trade show, Sheraton Hotel, New York, September 18-20.

BUSINESS BRIEFS

ATLANTIC RICHFIELD has retained Sarnon Brothers, the investment banking firm, to assist in the possible sale of its three California-based agricultural and biotechnology operations. Proposed for sale are Arco Seed Company and Valley Dehydrating Company, both subsidiaries of Arco, and the Plant Cell Research Institute, which is involved in applying recent advances in biotechnology and molecular biology to agriculture.

BUREAU OF MINES says it has developed two new methods for preparing boron nitride powders, which should make it easier and less expensive to produce high-tech ceramics. Manufacturers depend on high-temperature, energy-intensive processes to prepare boron nitride and other ceramic powders. The bureau's methods work at lower temperatures and require raw materials that are less expensive than those now used by the ceramics industry, the Bureau of Mines says.

DEBERT CORPORATION, Olympia Fields, Ill., designers and builders of chemical processing equipment and systems, has concluded an exclusive license agreement with Helder Topsoe AS of Denmark to design and build their "Catox" incineration plants throughout the US and Canada. The "Catox" system removes hydrocarbon compounds from industrial emissions. It uses a catalyst which is said to be highly resistant to deactivation by sulfur compounds and chlorinated hydrocarbons.

H.B. FULLER Company has acquired the compounded dry animal glue product line from Hudson Industries Corporation, West Orange, N.J., for an undisclosed sum. The deal includes trade names, product formulas and customer lists for Hudson's line of compounded animal glues for applications in the graphic arts and packaging industries. Fuller says it will transfer production of the acquired product line to one of its US production facilities.

HERCULES INCORPORATED has sold its Union, Mo., plastic container plant to DRG, a worldwide packaging group headquartered in Bristol, UK. The Union facility manufactures thermoformed polyolefin containers for various packaging applications. The plant makes 200 million units a year and employs about 65 people. The containers are used for a variety of frozen, refrigerated and shelf-stable food products, as well as medical applications.

MOBIL POLYMERS has published a new four-color brochure describing the company's services for polyethylene rotational molders. The 12-page brochure describes Mobil's technical support, customer service capabilities and R&D programs for the development of new rotational molding resins and applications. The brochure is available by contacting Mobil at its Greenwich, Conn., offices.

SALSBUURY LABORATORIES has expanded its applications research for fine and specialty chemical makers. While continuing to serve the drug industry's needs for intermediates and generic drug products, Salsbury says it will dedicate resources to helping general chemicals manufacturers achieve cost efficiencies in production of medium-volume intermediates and preparation of high-technology fine chemicals. The company has a new named John Pessante as its new director of chemicals marketing.

SANZONE ASSOCIATES INC., Montville, N.J., has introduced a fully integrated software package for writing, distributing and tracking material safety data sheets. The package, called "MSDS Master," is compatible with IBM and Wang equipment, Sanzone says. The system provides suggested text for most sections of MSDS's.

SWISS POLYMERS, a wholly-owned subsidiary of Ebnother AG of Switzerland, and Union Carbide Corporation have entered into a cooperative arrangement to market Garbida's "Elofax" redispersible powders to customers in North and Central America. UCAR Emulsion Systems, based in Gary, N.C., will provide the sales, marketing and technical support for the redispersible powders.

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